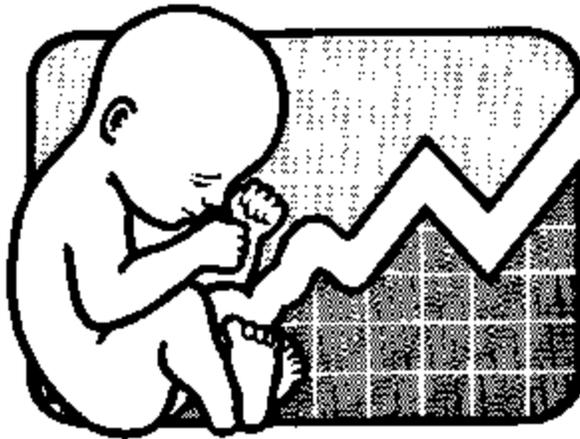




**1995**  
**Arizona Birth Defects**  
**Monitoring Program Report**





**Jane Dee Hull**  
Governor  
State of Arizona

**Catherine R. Eden**  
Director  
Arizona Department of Health Services

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# **1995 ARIZONA BIRTH DEFECTS MONITORING PROGRAM REPORT**

**Arizona Birth Defects Monitoring Program  
Office of Health Registries  
Bureau of Public Health Statistics  
Arizona Department of Health Services**

**2700 North Third Street, Ste. #4075  
Phoenix, Arizona 85004  
(602) 542-7349**

**June 12, 2000**

**by**

**Marilou C. Legazpi Blair, Ph.D.  
Epidemiologist  
Office of Epidemiology and Statistics  
Bureau of Public Health Statistics**

## ACKNOWLEDGMENTS

Hoa Lien Tran, M.D., M.P.H. ....Program Manager

Matilda Armenta ..... Abstractor

Laura Cook .....Abstractor

Kim Nguyen .....Abstractor

Ann Snider .....Abstractor

Paula Flores.....Secretary

Georgia Armenta Yee, B.S.W., C.T.R.....Chief, Office of Health Registries

Ross Brechner, M.D., M.S., M.P.H.....Chief, Office of Epidemiology and Statistics

Richard Porter, M.S..... Chief, Bureau of Public Health Registries

Tim Flood, M.D. ....Medical Director

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## **EXECUTIVE SUMMARY**

There were 1,386 children with a reportable birth defect born to Arizona residents in Arizona in 1995. During this period there were 72,386 live births and 497 still births in Arizona. This report presents 44 composite categories of birth defects developed by the Centers for Disease Control and Prevention (CDC) (Appendix 2). These categories are the most serious defects. Of the 1,386 children, 1,013 are included in this report for these 44 categories. Arizona's overall birth defect rate is 19.0 cases per 1,000 births in 1995, which is slightly higher than the 1992 birth defect rate of 18.26 cases per 1,000 births and lower than 1991 birth defect rate of 31.4 cases per 1,000 births. It should be noted that the decrease in the birth defect rate between 1991 and 1992 is due to a reduction in the number of reportable birth defects conditions included in the Arizona Birth Defects Monitoring Program (ABDMP) from 500 to 140, effective with 1992 births. The most common birth defects observed were pyloric stenosis (148 cases), oral clefts (141 cases), obstruction of kidney/ureter (108 cases), Down syndrome (90 cases), dislocation of hip (83 cases), and microcephaly (81 cases) (Table 1). Other common defects are hypospadias (179 cases) and ventricular septal defect (141 cases) (Appendix 8).

### Race/Ethnicity Patterns

Native Americans had the highest rates for microcephaly. The rates of pyloric stenosis was highest for Hispanics, followed by Blacks and Whites. Spina bifida was the most common neural tube defect (NTD) among all races; however, it was most common among Hispanics. Down syndrome exhibited highest rates among Blacks. Tests of significance indicate that none of these differences are statistically significant.

### Age Patterns

Observed rates for all birth defects were highest among women 35 years of age and older. The rate of Down syndrome (Trisomy 21) increased with maternal age. Gastroschisis, an abdominal wall defect, showed highest rates among young mothers and decreased in incidence with maternal age.

## County Patterns

Birth defects data are presented by county. Cases are aggregated for the years 1986 through 1992 and 1995 to provide numbers large enough for analysis. Gila county had the highest rate of congenital anomalies, whereas Greenlee and La Paz counties had the lowest rates. The results of the z-tests indicate that the overall birth defect rate of Gila county is significantly higher than the state rate ( $p < .01$ ). The 44 composite categories of birth defects were also examined by race and county. Statistically significant differences were found only for Apache county rates for whites and Gila county rates for Native Americans. The results show that Apache county rates for Whites is significantly lower at the 0.01 level than the state rate for whites. In contrast, the Gila county rates for Native Americans is significantly higher than the state rate ( $p < .01$ ). The rates of five sentinel defects (chromosomal defects, oral clefts, heart defects, abdominal wall defects, and neural tube defects) are examined by county. The county rates are not significantly different from the state rate for any of these defects. Chromosomal defect rates are highest for Gila county (2.28 per 1,000 live births) and Navajo county (1.91 per 1,000 births) and lowest for Greenlee, La Paz, Graham, Santa Cruz, and Mohave counties. For oral clefts, Apache and Gila counties have the highest rates for this time period at 3.05 and 2.84 per 1,000 live births respectively while, Greenlee, La Paz, Graham and Maricopa countries have the lowest rates. Maps are used to show the incidence rates of oral clefts for 1986 to 1992 and 1995 and the distribution of oral cleft cases for 1995. The maps show that oral cleft cases are widely dispersed across the state. Neural tube defects rates is highest for Navajo county at 1.25 per 1,000 live births, but is not statistically different from the state rate. Mohave county has the highest incidence rates for abdominal wall defects at 0.89 per 1,000 live births in contrast to the rate at the state level (0.50 per 1,000 live births), but is not statistically different from the state rate. Heart defect rates are highest for Navajo and Gila counties at 2.11 and 2.09 per 1,000 live births. These rates, however, are statistically different from the state rate of 1.44 per 1,000 live births at ( $p < .01$ ).

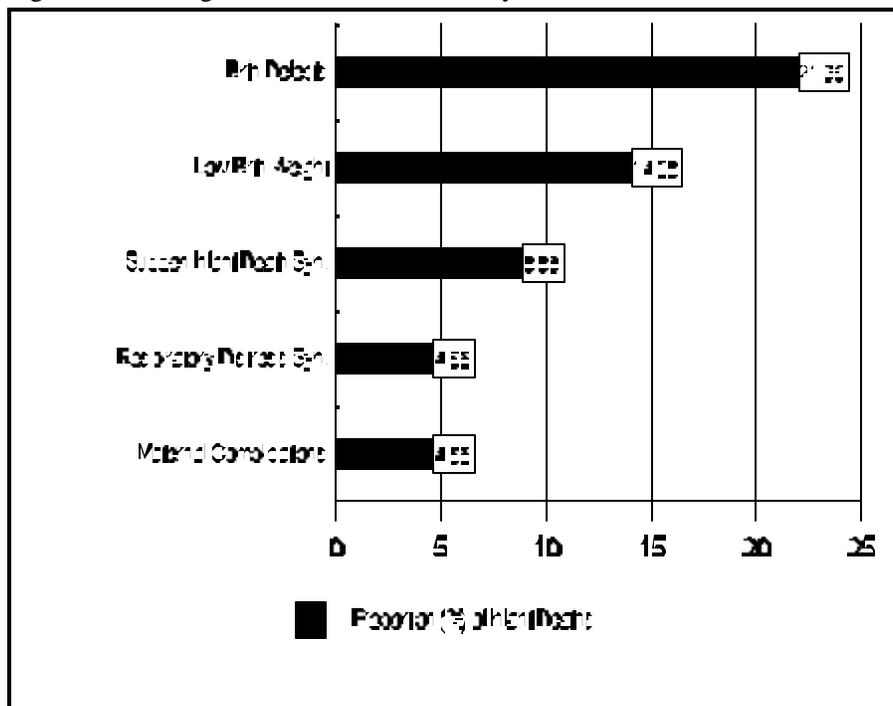
## THE IMPORTANCE OF ARIZONA'S BIRTH DEFECTS REGISTRY

The Arizona Birth Defects Monitoring Program (ABDMP) serves several public health functions. It is a population-based registry which provides accurate counts used for prevention efforts, planning health services, and ongoing surveillance to monitor for trends and early detection of problems. Such a registry is necessary because other systems for reporting birth defects, including birth certificates and hospital discharge data are not accurate or complete due to under reporting in the number of cases, lack of specificity of birth defects, and possible incomplete recording of birth defects information.<sup>1</sup> In addition, research shows that birth certificates often indicate defects that in fact were not present.<sup>2,3,4,5,6,7</sup>

### Economic Impact

Birth defects are the leading cause of infant mortality in the United States. In 1998, 22.0 percent of infant deaths were due to birth defects (see Figure 1).<sup>8</sup> In addition, birth defects are the fifth leading cause of years of potential life lost. The most recent study of population-based hospital discharge data in two states show that 12 percent of pediatric admissions were associated with birth defects and genetic diseases in 1991. Total hospital charges for these admissions were 2.84 times higher than

Figure 1. Leading Causes of Infant Mortality in the United States, 1998



charges for children who were admitted for all other reasons combined.<sup>9</sup> Another study using California's population based data (adjusted to provide national estimates) and national data estimated the economic cost of the most clinically important structural birth defects in the United States. Their results show that the combined estimated costs of 18 structural defects in the United States in 1992 was \$8 billion, with costs ranging from \$75,000 to \$503,000 per new case. Birth defects which were characterized by relatively high levels of long-term activity limitation had higher costs (i.e. Down Syndrome (\$451,000), the heart defect Truncus Arteriosus, (\$503,000), and Spina Bifida (\$294,000)).<sup>10</sup> Harris and James produced these estimates for each state and included factors such as lost wages to family members caring for children who have birth defects and psychosocial costs. Data on the 1988 Arizona birth cohort show that the estimated lifetime costs in 1992 dollars of selected birth defects in Arizona range from \$1,275,543 to \$41,596,118, depending on the defect category.<sup>11</sup>

### Human Cost

While the economic costs associated with birth defects are easier to ascertain, estimating the human and societal costs is more difficult. Human and societal costs of birth defects are usually reflected by the impact of birth defects on infant mortality and the number of years of potential life lost. Case ascertainment systems that use intensive measures to document birth defects find that an estimated 3-5 percent of births have a serious birth defect. This would imply that 116,000 to 194,000 babies in the United States in 1997 were born with a serious birth defect.<sup>12</sup> For Arizona, in 1995 there was a total of 1,386 live births and fetal deaths with a birth defect.

Scientists know the cause of only a relatively small number of defects. For example, maternal alcohol consumption causes fetal alcohol syndrome; German measles in early pregnancy causes congenital rubella syndrome. There may be many defects caused by teratogens, yet to be discovered. However, the search for causes of birth defects is a difficult process. If Arizona is to ensure its children a healthy future, we must continue to search for the causes of congenital anomalies. Also, birth defect registries are a vital first step in reducing birth defects. The documentation of baseline birth defect rates in Arizona provides the starting point against which we can measure successful interventions.

## **METHODS**

### Data Sources and Procedures

The ABDMP is a statewide, population-based, active surveillance program, pursuant to ARS §36-133 which mandates the surveillance of chronic diseases, including birth defects. Trained ABDMP staff collect data from 64 reporting sources: 58 hospitals, including Phoenix Children's Hospital; 2 centers providing genetics services; 4 clinics of the state Children's Rehabilitative Services; and the state Office of Vital Records. Ascertainment procedures used by the ABDMP are nearly identical to those used by the California Birth Defects Monitoring Program and the US Centers for Disease Control's Metropolitan Atlanta Congenital Defects Program (MACDP).

Sources of data at hospitals include the disease index, labor and delivery log, nursery log, newborn intensive care log, pediatric log, pathology/autopsy log. Not all sources are available at each hospital. Potential cases are identified through a review of the hospital's disease index and various logs. This process is called case finding. Next, the medical records of possible cases are pulled and reviewed to determine which records meet the case definition. An abstract of the medical record then is completed for each reportable case. In order to find the birth defect cases born in 1995, ABDMP staff reviewed more than 10,000 medical records, identified reportable cases, and excluded those not meeting the case definition.

In addition to the hospital sources, Certificates of Birth, Death, and Fetal Death that indicate a birth defect are reviewed and matched against cases listed in the registry. Medical records then are requested from the reporting hospitals on those children not previously identified from other sources and if the condition(s) reported meet the case definition, pertinent information is abstracted for the registry. If the nature of a defect diagnosed in the first year of life is more precisely diagnosed later in the child's life and this information is contained in the chart at the time of our review (which occurs 2-4 years after the child's birth or fetal death) then the more precise diagnosis is used.

The abstracts of cases identified from multiple sources are compared, merged, and added to the registry. Inconsistencies, differences and/or conflicting data are resolved before being entered into the ABDMP system.

ABDMP staff assign a six-digit classification code to each defect. The classification system is CDC's modification of the British Pediatric Association (BPA) Classification of Disease. This coding system is similar to the International Classification of Disease (ICD). The staff collect diagnostic information on

birth defects that fall primarily within the range of ICD-9-CM Codes 740.00-759.99. The system of codes is hierarchical: the more digits in the code, the more precise the diagnosis. ABDMP staff always code the data at the most precise level possible.

### Case Definition

The following are the criteria for inclusion in the Birth Defects Monitoring Program case file:

- A. The mother's place of residence at the time of birth must be in Arizona.
- B. The child must have a structural, genetic, or biochemical birth defect, or other specified birth outcome that can adversely affect an infant's health and development (most, but not all, are listed in ICD-9-CM 740.0-759.9).
- C. The defect must be diagnosed, or signs and symptoms of a potential defect recognized, within the first year of life.
- D. Stillborn infants are included if they have a reportable birth defect.
- E. The date of birth (or delivery for stillbirths > 19 weeks of gestational age) is on or after January 1, 1986.

Due to the need to collect and report data on birth defects in a more timely manner, effective March, 1996, the ABDMP reduced the number of reportable conditions to include only the major congenital anomalies recommended by "The International Clearinghouse for Birth Defects Monitoring Systems" and recommended by CDC. The reduced list of reportable defects went into effect starting with births occurring in 1992. The retained, reportable defects still permit the ABDMP to compare its rates with other registries for the major birth defects categories. The number of reportable congenital anomalies was reduced from over 500 to 140 conditions.

Operationally, the ABDMP staff collected data for the births occurring in 1992 and 1995 at about the same time. This was done to expedite the registration of these defects.

## **INTERPRETING THE DATA**

The tables and figures presented in this report represent data collected on birth defects in Arizona for the period 1986 to 1992, and 1995. Each table presents the reported counts, rates and confidence intervals on selected congenital anomalies. Below is an explanation of how counts, rates, and confidence intervals were calculated.

### Counts

The counts, sometimes called cases, represent the number of children who were diagnosed with a particular reportable birth defect within the first year of life. Children born with more than one reportable defect, as often occurs, are listed simultaneously in as many of the 44 selected birth defect categories as are applicable. However, within any one of the 44 categories, a child is listed no more than once.

### Rates

Incidence rates of birth defects were calculated by dividing the number of children with a particular reportable defect by the total number of live births (and in some cases live births plus fetal deaths) for the specific year of interest and then multiplying by 10,000. In most tables and figures, we show rates that are calculated by including live births and fetal deaths in both the numerator and denominator. For example, there were 90 cases (live born and still born infants  $\geq 20$  weeks of gestation) of Down Syndrome in 1995. There were 72,883 births (either live births or fetal deaths) in 1995. The rate is calculated as such:  $(90/72883)*10,000 = 12.35$  cases of Down Syndrome per 10,000 live births and fetal deaths.

### Confidence Intervals

The confidence intervals shown in the tables and figures are provided to give information about the estimate of the rate. Confidence intervals presented in this report are 99 percent Poisson confidence intervals. The confidence intervals indicate that the true rate should be contained in this interval 99 percent of the time. For example, Down Syndrome occurs at a rate of 12.35 per 10,000 births. The lower and upper bounds of the point estimate of this rate are 9.2 and 16.1, respectively. Thus, one can say that 99 percent of the time that the true rate of Down Syndrome is between 9.2 and 16.1 cases per 10,000 live births and fetal deaths.

### Small Numbers and a Note Of Caution

While the intent of these data is to provide the reader with useful information on birth defects in Arizona, an equally important point is not to mislead data users. Therefore, it is important to stress that rates, confidence intervals, or any other analysis based on fewer than 10 reported cases cannot be considered statistically reliable.

## **STATE PROFILE OF DEFECTS**

### State Data

This is the eighth annual report of data compiled by the ABDMP in its mission to collect and analyze information on children with birth defects and to provide data for the study of causes of birth defects in Arizona.

### Tables and Figures

Table 1 presents data on 44 selected congenital anomalies by race for 1995. Table 2 looks at all reportable birth defects for both live births and fetal deaths. Fetal deaths include therapeutic abortions and still-born babies with a reportable congenital defect if the estimated gestational age is greater than 19 weeks. Table 3 displays birth defect rates by year for 1986 through 1992 and 1995. The series of graphs in Figure 2 display the trends for selected congenital anomalies.

### County and Race/Ethnicity

An expanded look at selected birth defects and race/ethnicity follow the section on state profile. County level data is presented later in this report under the heading County Profiles.

Table 1  
 Arizona Birth Defects Monitoring Program  
 Congenital Anomalies - Arizona 1995  
 Incidence Rates<sup>a, b</sup> per 10,000 Live Births and Fetal Deaths

CODE	DEFECT GROUP	TOTAL	RATE	WHITE	RATE	HISP.	RATE	BLACK	RATE	NATIVE	RATE	OTHER	RATE
										AMER.			
A00	CENTRAL NERVOUS SYSTEM												
A01	Anencephaly	18	2.47	8	1.55	8	3.16	0	0.00	2	3.89	0	0.00
A02	Spina Bifida w/ Hydrocephaly	24	3.29	10	2.58	11	4.35	2	8.83	1	1.95	0	0.00
A03	Spina Bifida w/o Hydrocephaly	10	1.37	4	1.03	4	1.58	1	4.41	1	1.95	0	0.00
A13	Encephalocele	7	0.96	1	0.26	4	1.58	0	0.00	2	3.89	0	0.00
A15	Hydrocephaly	40	5.49	16	4.13	18	7.11	0	0.00	5	9.72	1	6.92
A16	Microcephaly	81	11.11	24	6.20	38	15.02	6	26.48	12	23.34	1	6.92
B00	EYE AND EAR												
B03	Glaucoma	5	0.69	4	1.03	1	0.39	0	0.00	0	0.00	0	0.00
B04	Cataract	14	1.92	9	2.32	2	0.79	2	8.83	1	1.95	0	0.00
B51	Anophthalmia	2	0.27	2	0.52	0	0.00	0	0.00	0	0.00	0	0.00
B52	Microphthalmia	24	3.29	11	2.84	7	2.77	0	0.00	6	11.67	0	0.00
B54	Ear Anomaly w/ hearing loss	46	6.31	18	4.65	21	8.30	1	4.41	6	11.67	0	0.00
D00	CARDIAC												
D01	Truncus Arteriosus	3	0.41	3	0.77	0	0.00	0	0.00	0	0.00	0	0.00
D02	Transposition of great vessels	33	4.53	14	3.61	13	5.14	3	13.24	2	3.89	1	6.92
D03	Tetralogy of Fallot	29	3.98	10	2.58	13	5.14	2	8.83	3	5.83	1	6.92
D04	Single ventricle	5	0.69	3	0.77	1	0.40	0	0.00	1	1.95	0	0.00
D51	Aortic stenosis	30	4.12	17	4.39	10	3.95	0	0.00	3	5.83	0	0.00
D52	Hypoplastic left heart	10	1.37	7	1.81	3	1.18	0	0.00	0	0.00	0	0.00
D53	Tot. anomal. pulm. ven. return	12	1.65	2	0.52	7	2.77	0	0.00	3	5.83	0	0.00
E00	RESPIRATORY												
E01	Choanal atresia	14	1.92	8	2.06	4	1.58	1	4.41	1	1.94	0	0.00
E06	Agenesis of lung	14	1.92	8	2.06	4	1.58	2	8.83	0	0.00	0	0.00
F00	OROFACIAL AND GASTROINTESTINAL												
F01	Cleft palate	47	6.45	26	6.71	16	6.32	4	17.65	1	1.94	0	0.00
F01	Cleft lip w&wo cleft palate	94	12.90	46	11.88	33	13.04	4	17.65	11	21.39	0	0.00
F08	Pyloric stenosis	148	20.31	75	19.36	62	24.51	5	22.06	4	7.78	2	13.83
F09	Tracheo-esophageal fistula	18	2.47	13	3.36	5	3.36	0	0.00	0	0.00	0	0.00

<sup>a</sup> Incidence rates include live-born and still born cases. <sup>b</sup> Incidence rates based on counts of less than 10 events are not statistically reliable.

Table 1 Continued  
 Arizona Birth Defects Monitoring Program  
 Congenital Anomalies - Arizona 1995  
 Incidence Rates<sup>a,b</sup> per 10,000 Live Births and Fetal Deaths

CODE	DEFECT GROUP	TOTAL	RATE	WHITE	RATE	HISP.	RATE	BLACK	RATE	NATIVE AMER.	RATE	OTHER	RATE
F00	OROFACIAL AND GASTROINTESTINAL												
F14	Stenosis/atresia of duodenum	9	1.23	2	0.52	6	2.37	0	0.00	1	1.94	0	0.00
F15	Stenosis/atresia of sm. intest	11	1.51	4	1.03	5	1.98	2	8.83	0	0.00	0	0.00
F16	Stenosis/atresia of rectum	37	5.08	17	4.39	15	5.94	2	8.83	3	5.83	0	0.00
F17	Hirschsprung's disease	16	2.19	5	1.29	9	3.56	1	4.41	0	0.00	1	6.92
F18	Malrotation of intestine	19	2.61	12	3.10	6	2.37	1	4.41	0	0.00	0	0.00
F21	Biliary atresia	3	0.41	1	0.26	1	0.39	1	4.41	0	0.00	0	0.00
H00	GENITO-URINARY												
H01	Renal agenesis	39	5.35	21	5.42	16	6.32	1	4.41	1	1.94	0	0.00
H06	Obstruction of kidney/ureter	108	14.82	45	11.62	48	18.97	1	4.41	10	19.45	4	27.66
H09	Bladder or urethra obstruction	7	0.96	2	0.52	5	1.98	0	0.00	0	0.00	0	0.00
J00	MUSCULOSKELETAL												
J03	Dislocation of hip	83	11.39	32	8.26	33	13.04	2	8.83	14	27.23	2	13.83
	Complete absence upp/low limb	2	0.27	1	0.26	0	0.00	0	0.00	1	1.94	0	0.00
J51	Phocomelia of Limb	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
J52	Amniotic Bands	12	1.65	7	1.81	5	1.98	0	0.00	0	0.00	0	0.00
K05	Diaphragmatic hernia	20	2.74	13	3.36	5	1.98	1	4.41	1	1.94	0	0.00
N01	Omphalocele	14	1.92	7	1.81	4	1.58	1	4.41	2	3.89	0	0.00
N02	Gastroschisis	27	3.70	14	3.61	8	3.16	2	8.83	3	5.83	0	0.00
N04													
R00	SYNDROMES												
R01	Down Syndrome (Trisomy 21)	90	12.35	45	11.62	34	13.44	5	22.06	4	7.78	2	13.83
R02	Patau Syndrome (Trisomy 13)	8	1.10	4	1.03	4	1.58	0	0.00	0	0.00	0	0.00
R03	Edwards Syndrome (Trisomy 18)	18	2.47	9	2.32	6	2.37	1	4.41	2	3.89	0	0.00
S02	Fetal Alcohol Syndrome	27	3.70	4	1.03	5	1.98	2	8.83	15	29.17	1	6.92

<sup>a</sup> Incidence rates include live born and still born cases. <sup>b</sup> Incidence rates based on counts of less than 10 events are not statistically reliable.

Table 2  
 Arizona Birth Defects Monitoring Program <sup>a, b</sup>  
 Birth Defects by County of Residence, 1995  
 (140 Conditions Monitored)

STATE, COUNTY	LIVE BIRTHS W/DEFECTS		STILL BIRTHS W/ DEFECTS		LIVE AND STILL W/ DEFECTS		NUMBER OF DEFECTS OF LIVE BIRTHS		NUMBER OF DEFECTS OF STILL BIRTHS	
	Number	% OF LB	Number	% OF SB	Number	% TOT.	Number	AVG Number	Number	AVG Number
ARIZONA	1330	1.84	56	11.27	1386	1.90	2279	1.71	119	2.12
APACHE COUNTY	24	1.80	0	0.00	24	1.79	38	1.58	0	0.00
COCHISE COUNTY	27	1.54	0	0.00	27	1.53	45	1.67	0	0.00
COCONINO COUNTY	32	1.82	1	6.67	33	1.86	59	1.84	1	1.00
GILA COUNTY	15	2.19	1	25.00	16	2.32	29	1.93	1	1.00
GRAHAM COUNTY	7	1.76	0	0.00	7	1.76	10	1.43	0	0.00
GREENLEE COUNTY	3	1.91	0	0.00	3	1.91	10	3.33	0	0.00
LA PAZ COUNTY	4	2.09	1	50.00	5	2.59	4	1.00	9	9.00
MARICOPA COUNTY	825	1.87	42	13.64	867	1.96	1373	1.66	83	1.98
MOHAVE COUNTY	32	1.74	2	16.67	34	1.83	53	1.66	5	2.50
NAVAJO COUNTY	44	2.66	1	6.25	45	2.70	88	2.00	2	2.00
PIMA COUNTY	179	1.60	8	10.96	187	1.66	345	1.93	18	2.25
PINAL COUNTY	37	1.82	0	0.00	37	1.81	60	1.62	0	0.00
SANTA CRUZ COUNTY	16	2.03	0	0.00	16	2.02	30	1.87	0	0.00
YAVAPAI COUNTY	24	1.57	0	0.00	24	1.56	51	2.12	0	0.00
YUMA COUNTY	61	2.00	0	0.00	61	1.99	84	1.38	0	0.00

<sup>a</sup>Total number of live births in Arizona for 1995 = 72,386

<sup>b</sup>Total number of fetal deaths in Arizona for 1995 = 497

Table 3  
 Arizona Birth Defects Monitoring Program  
 Incidence Rates<sup>a</sup> Per 1,000 Live Births and Fetal Deaths, Arizona

CODE/CONDITION (1)		1986	1987	1988	1989	1990	1991	1992	1995
A01 Anencephaly	Cases	22	17	18	18	16	17	21	18
	Rate	0.35	0.26	0.27	0.27	0.23	0.25	0.30	0.25
	CI	0.19-0.60	0.12-0.48	0.13-0.48	0.13-0.48	0.11-0.43	0.12-0.45	0.16-0.52	0.12-0.44
A02 S.B. with Hydrocephaly	Cases	26	24	19	22	23	21	26	24
	Rate	0.42	0.37	0.28	0.33	0.33	0.31	0.38	0.33
	CI	0.24-0.69	0.20-0.62	0.14-0.50	0.17-0.55	0.18-0.56	0.16-0.53	0.21-0.61	0.18-0.55
A03 S.B. without Hydrocephaly	Cases	10	11	6	16	16	13	12	10
	Rate	0.16	0.17	0.09	0.24	0.23	0.19	0.17	0.14
	CI	0.06-0.35	0.06-0.35	0.02-0.23	0.11-0.44	0.11-0.43	0.08-0.37	0.07-0.35	0.05-0.29
A13 Encephalocele	Cases	10	8	14	5	13	14	2	7
	Rate	0.16	0.12	0.21	0.07	0.19	0.20	0.03	0.10
	CI	0.06-0.35	0.03-0.29	0.09-0.40	0.02-0.21	0.08-0.37	0.09-0.39	0.00-0.13	0.03-0.24
A15 Hydrocephaly	Cases	34	41	48	44	52	46	34	40
	Rate	0.55	0.64	0.72	0.65	0.75	0.67	0.49	0.55
	CI	0.34-0.85	0.41-0.95	0.48-1.04	0.43-0.95	0.51-1.06	0.44-0.97	0.30-0.75	0.35-0.82
A16 Microcephaly	Cases	30	60	70	109	118	120	90	81
	Rate	0.49	0.94	1.06	1.61	1.70	1.75	1.30	1.11
	CI	0.29-0.77	0.65-1.30	0.76-1.43	1.17-1.96	1.33-2.15	1.37-2.21	0.97-1.70	0.82-1.47
B03 Glaucoma	Cases	2	7	4	5	4	2	1	5
	Rate	0.03	0.10	0.06	0.07	0.06	0.03	0.01	0.07
	CI	0.04-0.15	0.03-0.26	0.00-0.19	0.02-0.21	0.01-0.18	0.00-0.14	0.00-0.11	0.01-0.19

(1) See appendix for explanation of the codes/conditions

CI = Approximate 99% confidence intervals.

“Cases” are the number of live born and still born infants  $\geq$  20 weeks gestation.

Table 3 Continued  
 Arizona Birth Defects Monitoring Program  
 Incidence Rates<sup>a</sup> Per 1,000 Live Births and Fetal Deaths, Arizona

CODE/CONDITION (1)		1986	1987	1988	1989	1990	1991	1992	1995
B04 Cataract	Cases	8	7	7	15	24	10	12	14
	Rate	0.13	0.10	0.10	0.22	0.35	0.15	0.17	0.19
	CI	0.04-0.30	0.03-0.26	0.03-0.26	0.10-0.42	0.19-0.57	0.05-0.31	0.07-0.35	0.09-0.37
B51 Anophthalmia	Cases	6	1	3	5	7	5	3	2
	Rate	0.09	0.01	0.04	0.07	0.10	0.07	0.04	0.03
	CI	0.02-0.25	0.00-0.11	0.00-0.16	0.02-0.21	0.03-0.25	0.02-0.21	0.00-0.16	0.00-0.13
B52 Microphthalmia	Cases	10	24	21	19	24	29	22	24
	Rate	0.16	0.37	0.31	0.28	0.35	0.42	0.32	0.33
	CI	0.06-0.35	0.20-0.62	0.16-0.54	0.14-0.50	0.19-0.57	0.25-0.67	0.17-0.54	0.18-0.55
B54 Hearing loss w/ear anomaly	Cases	33	59	34	50	59	65	41	44
	Rate	0.53	0.92	0.51	0.74	0.85	0.95	0.59	0.60
	CI	0.32-0.83	0.64-1.28	0.31-0.79	0.50-1.06	0.59-1.18	0.67-1.30	0.38-0.88	0.39-0.88
D01 Truncus Arteriosus	Cases	4	10	9	9	6	6	3	3
	Rate	0.06	0.15	0.13	0.13	0.09	0.09	0.04	0.04
	CI	0.01-0.20	0.05-0.33	0.04-0.30	0.05-0.30	0.02-0.23	0.02-0.23	0.00-0.16	0.00-0.15
D02 Transposition of Great Vessels	Cases	32	26	26	33	28	26	25	33
	Rate	0.52	0.40	0.39	0.49	0.40	0.38	0.36	0.45
	CI	0.31-0.81	0.23-0.66	0.22-0.64	0.30-0.75	0.23-0.65	0.21-0.62	0.20-0.59	0.28-0.70
D03 Tetralogy of Fallot	Cases	15	18	29	23	27	22	32	29
	Rate	0.24	0.28	0.43	0.34	0.39	0.32	0.46	0.40
	CI	0.11-0.46	0.13-0.50	0.25-0.69	0.19-0.57	0.22-0.63	0.17-0.54	0.28-0.72	0.23-0.63

(1) See appendix for explanation of the codes/conditions

CI = Approximate 99% confidence intervals.

“Cases” are the number of live born and still born infants  $\geq$  20 weeks gestation.

Table 3 Continued  
 Arizona Birth Defects Monitoring Program  
 Incidence Rates<sup>a</sup> Per 1,000 Live Births and Fetal Deaths, Arizona

CODE/CONDITION (1)		1986	1987	1988	1989	1990	1991	1992	1995
D04 Single Ventricle	Cases	2	4	5	4	6	1	3	5
	Rate	0.03	0.06	0.07	0.06	0.09	0.01	0.04	0.07
	CI	0.00-0.15	0.01-0.19	0.01-0.21	0.01-0.19	0.02-0.23	0.00-0.11	0.00-0.16	0.01-0.19
D51 Aortic Stenosis	Cases	8	15	17	25	17	17	23	30
	Rate	0.13	0.23	0.25	0.37	0.25	0.25	0.32	0.41
	CI	0.04-0.30	0.10-0.44	0.12-0.46	0.21-0.61	0.12-0.45	0.12-0.45	0.18-0.56	0.24-0.65
D52 Hypoplastic Left Heart	Cases	9	16	8	16	19	11	13	10
	Rate	0.14	0.25	0.12	0.24	0.28	0.16	0.19	0.14
	CI	0.05-0.32	0.11-0.46	0.03-0.28	0.11-0.44	0.14-0.48	0.06-0.33	0.08-0.37	0.05-0.29
D53 Total Anomalous Pulmonary Venous Return	Cases	5	5	13	17	13	11	11	12
	Rate	0.08	0.07	0.19	0.25	0.19	0.16	0.16	0.16
	CI	0.17-0.23	0.01-0.22	0.08-0.38	0.12-0.46	0.08-0.37	0.06-0.33	0.06-0.33	0.07-0.33
E01 Choanal Atresia	Cases	6	10	10	16	6	5	6	14
	Rate	0.09	0.15	0.15	0.24	0.09	0.07	0.09	0.19
	CI	0.24-0.25	0.05-0.33	0.05-0.32	0.11-0.44	0.02-0.23	0.02-0.21	0.02-0.23	0.09-0.37
E06 Agenesis of Lung	Cases	25	44	32	42	49	50	26	14
	Rate	0.40	0.69	0.48	0.62	0.71	0.73	0.38	0.19
	CI	0.22-0.67	0.45-1.00	0.29-0.75	0.40-0.92	0.47-1.01	0.49-1.04	0.21-0.61	0.09-0.37
F01 Cleft Palate	Cases	39	46	36	43	38	31	27	47
	Rate	0.63	0.72	0.54	0.64	0.55	0.45	0.39	0.64
	CI	0.40-0.95	0.47-1.04	0.33-0.82	0.41-0.93	0.35-0.82	0.27-0.71	0.22-0.63	0.43-0.93

(1) See appendix for explanation of the codes/conditions

CI = Approximate 99% confidence intervals.

“Cases” are the number of live born and still born infants  $\geq$  20 weeks gestation.

Table 3 Continued  
 Arizona Birth Defects Monitoring Program  
 Incidence Rates<sup>a</sup> Per 1,000 Live Births and Fetal Deaths, Arizona

CODE/CONDITION (1)		1986	1987	1988	1989	1990	1991	1992	1995
F02 Cleft Lip with and without Cleft Palate	Cases	77	80	91	90	97	80	74	94
	Rate	1.25	1.25	1.37	1.33	1.40	1.17	1.07	1.29
	CI	0.91-1.67	0.92-1.66	1.03-1.79	1.00-1.74	1.06-1.81	0.86-1.55	0.78-1.43	0.97-1.67
F08 Pyloric Stenosis	Cases	108	135	134	122	116	148	137	148
	Rate	1.76	2.11	2.03	1.81	1.68	2.16	1.98	2.03
	CI	1.35-2.25	1.67-2.63	1.60-2.52	1.41-2.27	1.30-2.12	1.73-2.66	1.57-2.46	1.63-2.50
F09 TE Fistula, or Esophageal Atresia, or both	Cases	19	16	19	18	19	15	14	18
	Rate	0.31	0.25	0.28	0.27	0.27	0.22	0.20	0.25
	CI	0.15-0.54	0.11-0.46	0.14-0.50	0.13-0.48	0.14-0.48	0.10-0.41	0.09-0.39	0.12-0.44
F14 Stenosis/Atresia of Duodenum	Cases	5	15	11	10	10	6	13	9
	Rate	0.08	0.07	0.16	0.15	0.14	0.09	0.19	0.12
	CI	0.01-0.23	0.01-0.22	0.06-0.34	0.05-0.32	0.05-0.31	0.02-0.23	0.08-0.37	0.04-0.28
F15 Stenosis/Atresia of Small Intestine	Cases	18	12	13	16	16	9	13	11
	Rate	0.29	0.18	0.19	0.24	0.23	0.13	0.19	0.15
	CI	0.14-0.52	0.07-0.37	0.08-0.38	0.11-0.44	0.11-0.43	0.05-0.29	0.08-0.37	0.06-0.31
F16 Stenosis/Atresia of Rectum or Anus	Cases	27	26	27	35	35	38	31	37
	Rate	0.44	0.40	0.40	0.52	0.51	0.56	0.45	0.51
	CI	0.25-0.71	0.23-0.66	0.23-0.66	0.32-0.79	0.31-0.78	0.35-0.83	0.27-0.70	0.32-0.77
F17 Hirschsprung's Disease	Cases	11	10	10	7	13	13	7	16
	Rate	0.17	0.15	0.15	0.03	0.19	0.19	0.10	0.22
	CI	0.07-0.37	0.05-0.33	0.05-0.32	0.03-0.25	0.08-0.37	0.08-0.37	0.03-0.25	0.10-0.41

(1) See appendix for explanation of the codes/conditions

CI = Approximate 99% confidence intervals.

“Cases” are the number of live born and still born infants  $\geq$  20 weeks gestation.

Table 3 Continued  
 Arizona Birth Defects Monitoring Program  
 Incidence Rates<sup>a</sup> Per 1,000 Live Births and Fetal Deaths, Arizona

CODE/CONDITION (1)									
		1986	1987	1988	1989	1990	1991	1992	1995
F18 Malrotation of Intestine	Cases	10	10	16	14	16	14	10	19
	Rate	0.16	0.15	0.24	0.21	0.23	0.20	0.14	0.26
	CI	0.06-0.35	0.05-0.33	0.11-0.44	0.09-0.40	0.11-0.43	0.09-0.39	0.05-0.31	0.13-0.46
F21 Biliary Atresia	Cases	2	1	3	5	4	6	4	3
	Rate	0.03	0.01	0.04	0.07	0.06	0.09	0.06	0.04
	CI	0.00-0.15	0.00-0.11	0.00-0.16	0.02-0.21	0.01-0.18	0.02-0.23	0.01-0.18	0.00-0.15
H01 Renal Agenesis	Cases	21	27	23	43	33	37	33	39
	Rate	0.34	0.42	0.34	0.64	0.48	0.54	0.48	0.54
	CI	0.18	0.24-0.68	0.18-0.58	0.41-0.93	0.29-0.74	0.34-0.82	0.29-0.74	0.34-0.80
H06 Obstruction Kidney/Ureter	Cases	37	71	64	90	94	103	73	108
	Rate	0.60	1.11	0.97	1.33	1.36	1.50	1.05	1.48
	CI	0.37-0.91	0.80-1.50	0.68-1.32	1.00-1.74	1.02-1.76	1.15-1.93	0.76-1.42	1.14-1.89
H09 Bladder or Urethra Obstruction	Cases	8	12	9	7	3	8	7	7
	Rate	0.13	0.18	0.13	0.10	0.04	0.12	0.10	0.10
	CI	0.04-0.30	0.07-0.37	0.04-0.30	0.03-0.25	0.00-0.16	0.04-0.27	0.03-0.25	0.03-0.24
J03 Dislocation of Hip	Cases	87	101	68	91	105	103	66	83
	Rate	1.42	1.58	1.03	1.35	1.52	1.50	0.95	1.14
	CI	1.05-1.86	1.20-2.03	1.20-2.03	1.01-1.76	1.16-1.76	1.15-1.93	0.68-1.30	0.84-1.50
J51 Complete absence of upper or lower limb	Cases	2	0	1	3	3	2	1	2
	Rate	0.03	0.00	0.01	0.04	0.04	0.03	0.01	0.03
	CI	0.00-0.15	0.00-0.00	0.00-0.11	0.00-0.16	0.00-0.16	0.00-0.14	0.00-0.11	0.00-0.13

(1) See appendix for explanation of the codes/conditions

CI = Approximate 99% confidence intervals.

“Cases” are the number of live born and still born infants  $\geq$  20 weeks gestation.

Table 3 Continued  
Arizona Birth Defects Monitoring Program  
Incidence Rates<sup>a</sup> Per 1,000 Live Births and Fetal Deaths, Arizona

CODE/CONDITION (1)									
		1986	1987	1988	1989	1990	1991	1992	1995
J52 Phocomelia of limb	Cases	3	2	2	1	1	1	0	0
	Rate	0.04	0.03	0.03	0.01	0.01	0.01	0.00	0.00
	CI	0.00-0.18	0.00-0.14	0.00-0.14	0.00-0.25	0.00-0.11	0.00-0.11	0.00-0.00	0.00-0.00
K05 Amniotic Bands	Cases	4	4	9	8	14	10	8	12
	Rate	0.06	0.06	0.14	0.11	0.20	0.15	0.12	0.16
	CI	0.01-0.20	0.01-0.19	0.05-0.32	0.04-0.28	0.09-0.39	0.05-0.31	0.04-0.27	0.07-0.33
N01 Diaphragmatic Hernia	Cases	13	18	20	23	28	23	13	20
	Rate	0.21	0.28	0.30	0.34	0.40	0.34	0.19	0.27
	CI	0.09-0.41	0.13-0.50	0.15-0.52	0.19-0.57	0.23-0.65	0.18-0.56	0.08-0.37	0.14-0.48
N02 Omphalocele	Cases	10	14	17	10	21	21	10	14
	Rate	0.16	0.21	0.25	0.15	0.30	0.31	0.14	0.19
	CI	0.06-0.35	0.09-0.42	0.12-0.46	0.05-0.32	0.16-0.52	0.16-0.53	0.05-0.31	0.09-0.37
N04 Gastroschisis	Cases	19	18	19	19	21	36	27	27
	Rate	0.31	0.28	0.28	0.28	0.30	0.53	0.39	0.37
	CI	0.15-0.54	0.13-0.50	0.14-0.50	0.14-0.50	0.16-0.52	0.33-0.80	0.22-0.63	0.21-0.60
R01 Down Syndrome (Trisomy 21)	Cases	64	61	74	66	73	84	87	90
	Rate	1.04	0.95	1.12	0.98	1.05	1.23	1.26	1.23
	CI	0.73-1.43	0.67-1.32	0.81-1.50	0.70-1.33	0.76-1.42	0.91-1.62	0.94-1.65	0.92-1.61
R02 Patau Syndrome (Trisomy 13)	Cases	9	4	3	4	11	6	15	8
	Rate	0.14	0.06	0.04	0.06	0.16	0.09	0.22	0.11
	CI	0.05-0.32	0.01-0.19	0.00-0.16	0.01-0.19	0.06-0.33	0.02-0.23	0.10-0.41	0.03-0.26

(1) See appendix for explanation of the codes/conditions

CI = Approximate 99% confidence intervals.

“Cases” are the number of live born and still born infants  $\geq 20$  weeks gestation.

Table 3 Continued  
 Arizona Birth Defects Monitoring Program  
 Incidence Rates Per 1,000 Live Births and Fetal Deaths<sup>1</sup>  
 Arizona, 1995

CODE/CONDITION (1)									
		1986	1987	1988	1989	1990	1991	1992	1995
R03 Edwards Syndrome (Trisomy 18)	Cases	11	17	13	10	15	13	12	18
	Rate	0.17	0.26	0.19	0.15	0.22	0.19	0.17	0.25
	CI	0.07-0.37	0.12-0.48	0.08-0.38	0.05-0.32	0.10-0.41	0.08-0.37	0.07-0.35	0.12-0.44
S02 Fetal Alcohol Syndrome	Cases	9	25	12	21	22	27	33	27
	Rate	0.14	0.39	0.18	0.31	0.32	0.39	0.48	0.37
	CI	0.05-0.32	0.21-0.64	0.07-0.36	0.16-0.53	0.17-0.54	0.23-0.64	0.29-0.74	0.21-0.60

(1) See appendix for explanation of the codes/conditions

CI = Approximate 99% confidence intervals.

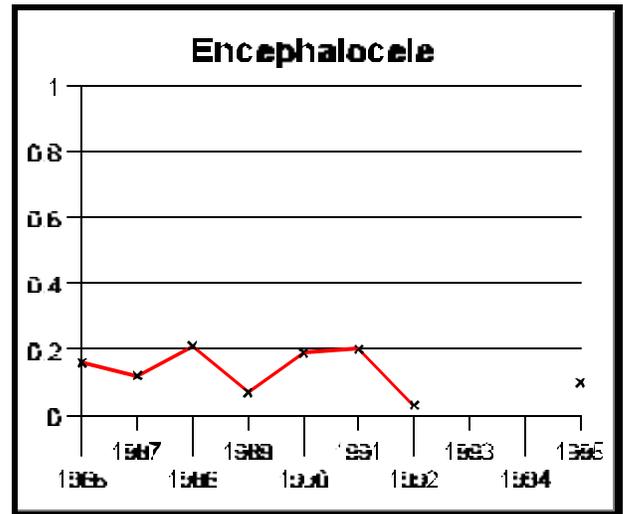
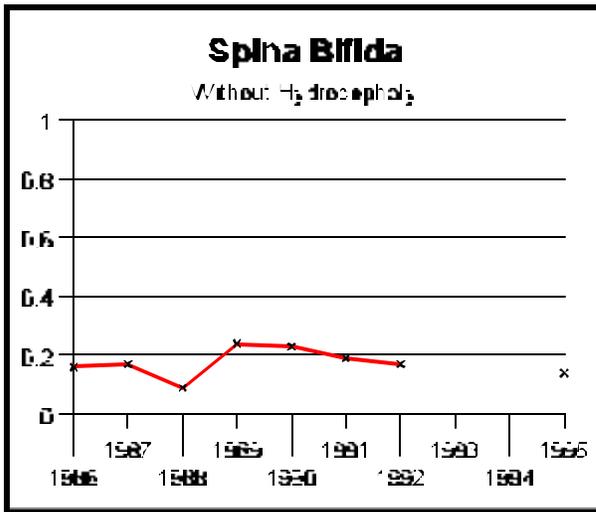
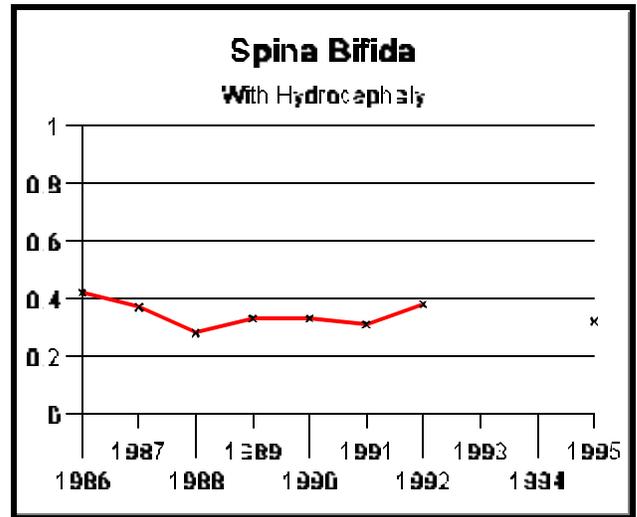
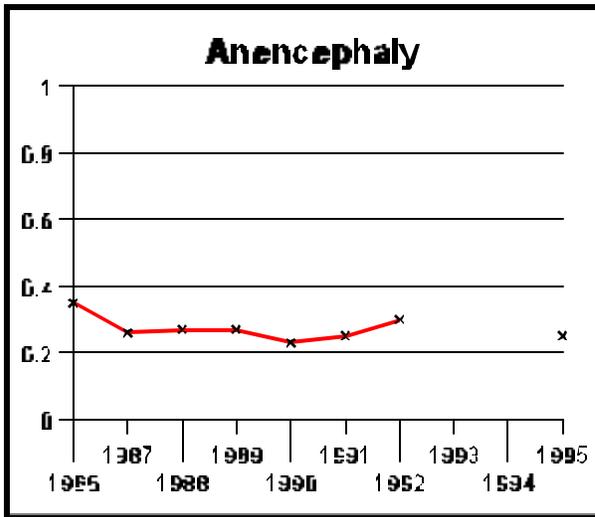
“Cases” are the number of live born and still born infants  $\geq 20$  weeks.

<sup>a</sup> The rates are calculated as the number of live born and still born cases of each defect divided by the denominators consisting of the total live births and still births as follows:

Denominators -

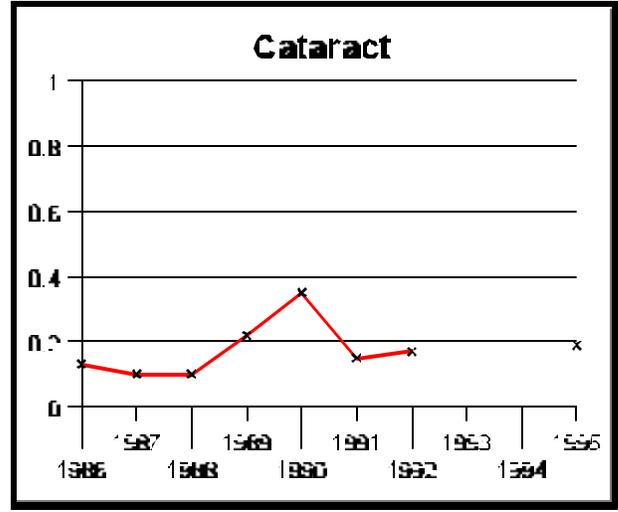
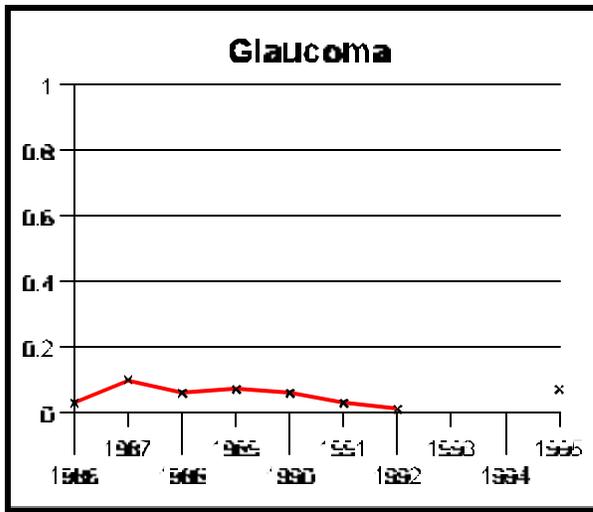
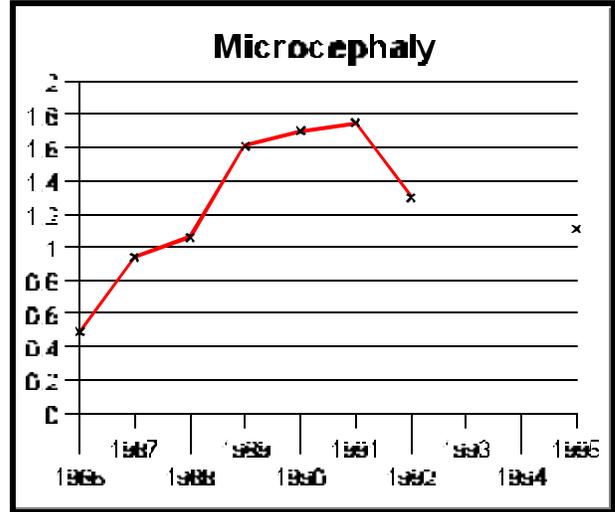
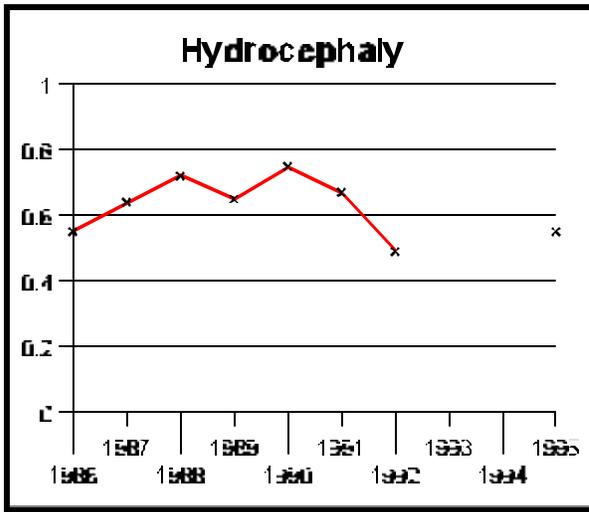
1986 = 61,203; 1987 = 63,742; 1988 = 65,981; 1989 = 67,498; 1990 = 69,245; 1991 = 68,449; 1992 = 69,202; 1995 = 72,883.

Figure 2. Trends of Selected Congenital Anomalies: Incident Rates  
(Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona<sup>a</sup>



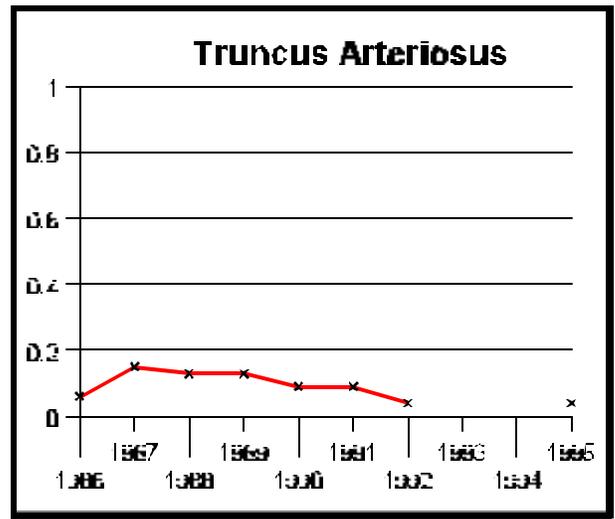
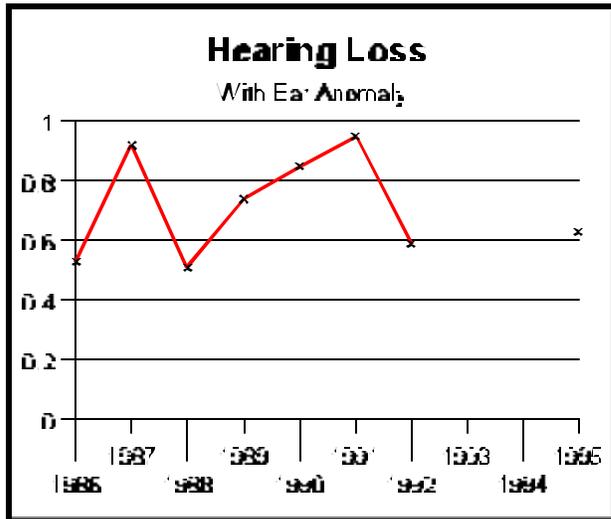
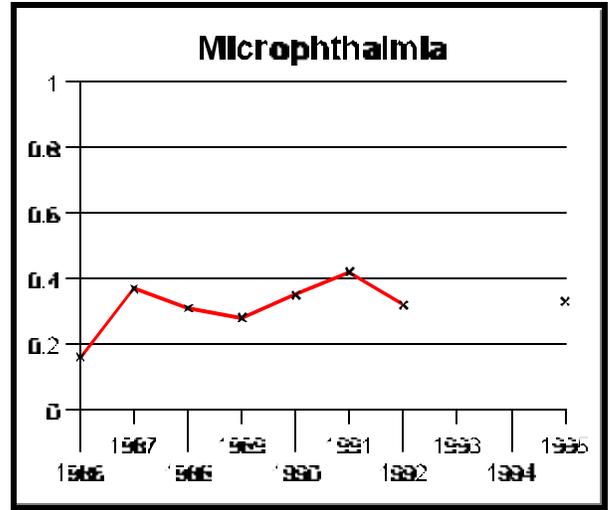
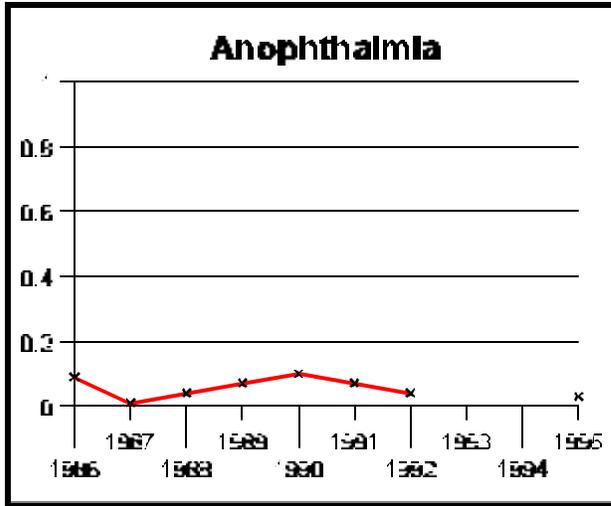
<sup>a</sup> Data is not available for 1993 and 1994.

Figure 2 Continued  
 Trends of Selected Congenital Anomalies: Incidence Rates  
 (Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona<sup>a</sup>



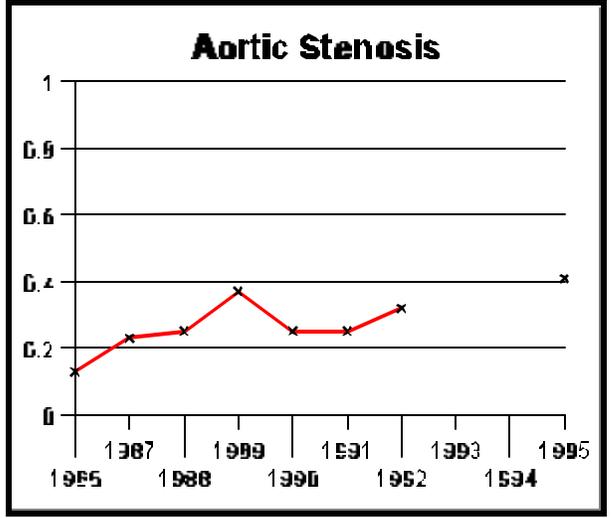
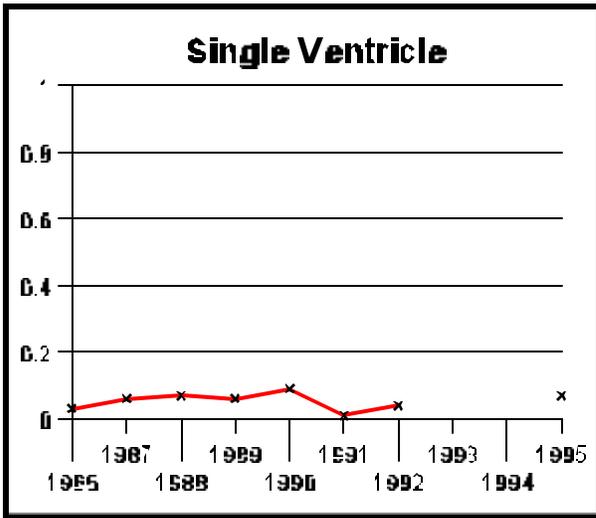
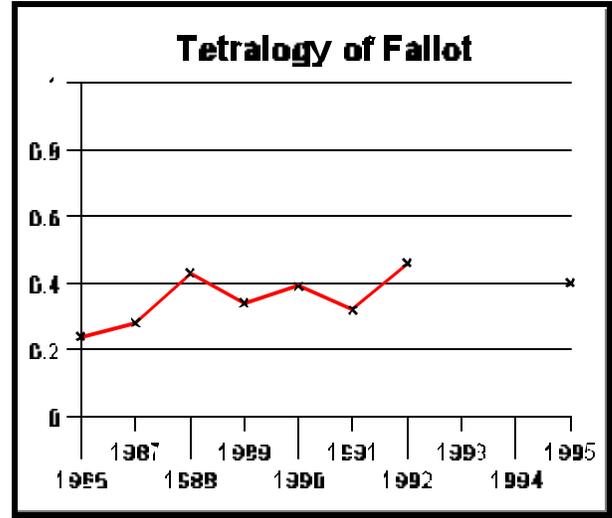
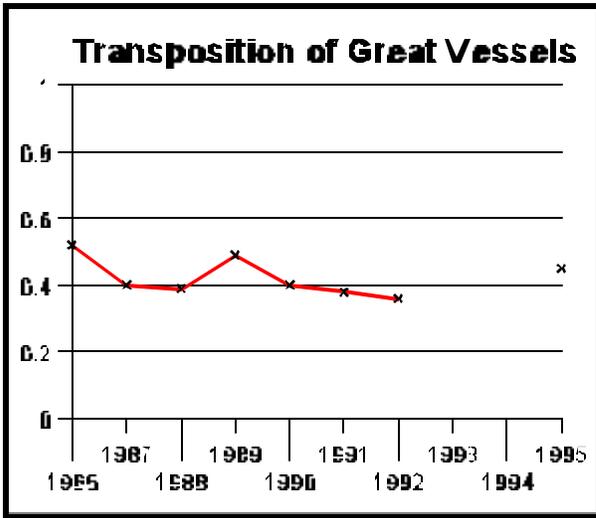
<sup>a</sup> Data is not available for 1993 and 1994.

Figure 2 Continued  
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 (Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona<sup>a</sup>



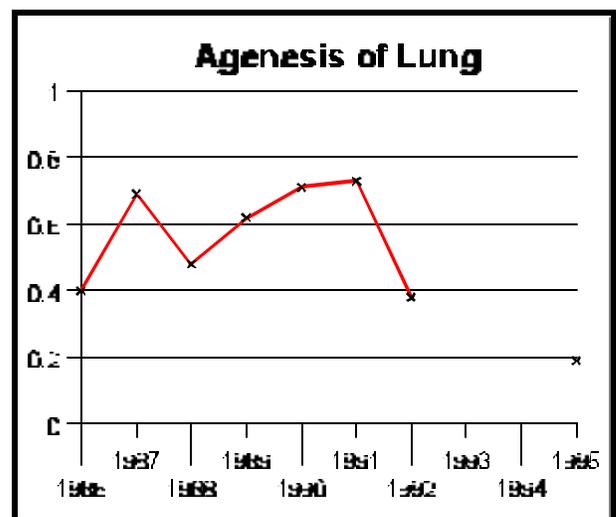
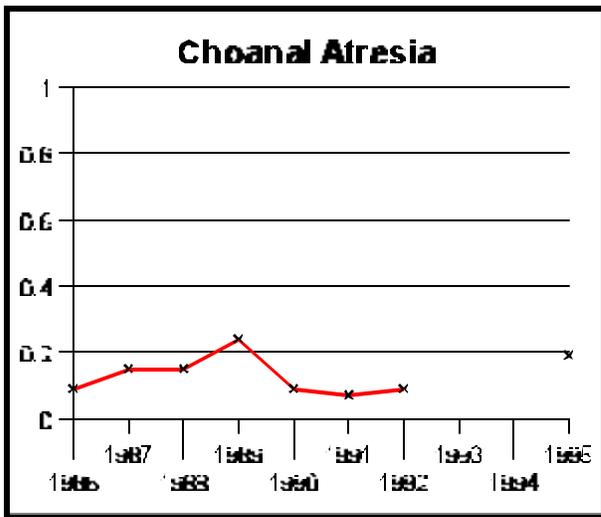
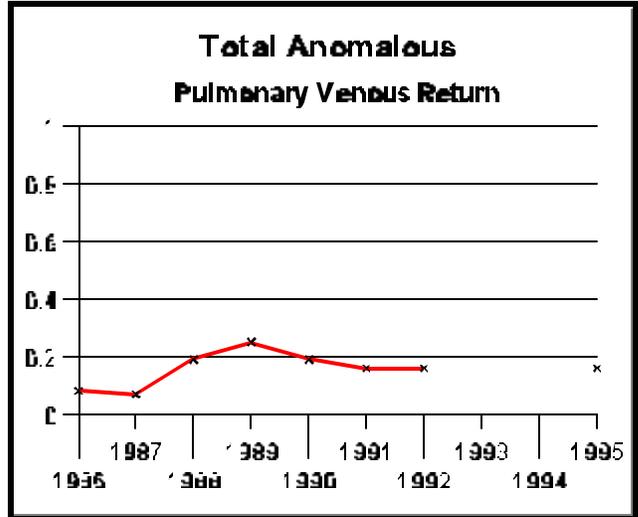
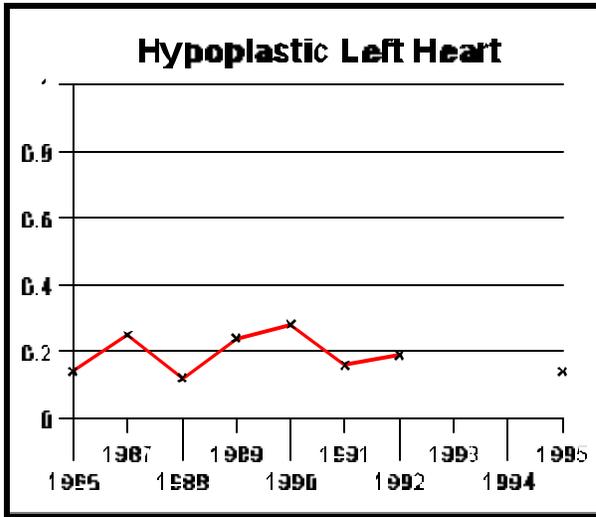
<sup>a</sup> Data is not available for 1993 and 1994.

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 (Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona<sup>a</sup>



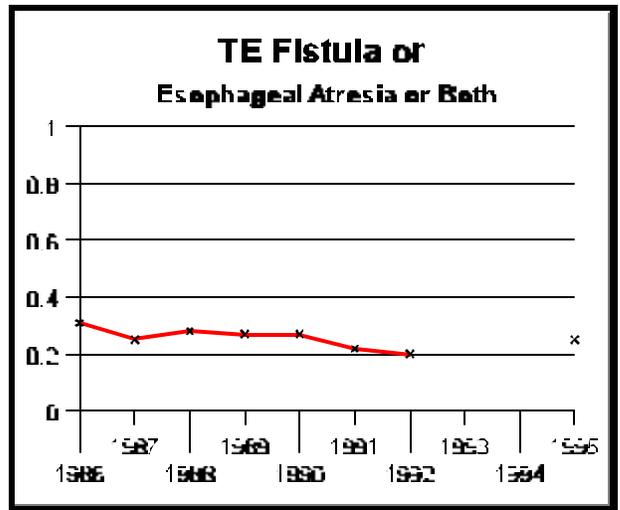
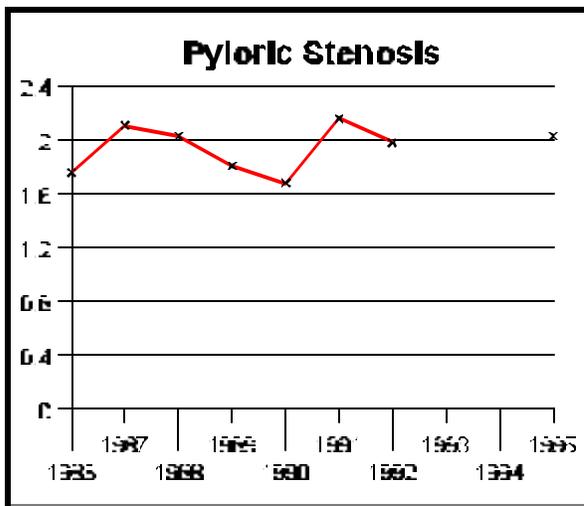
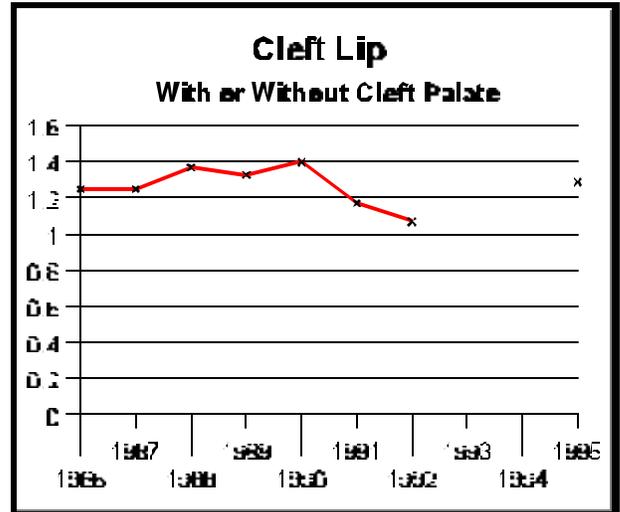
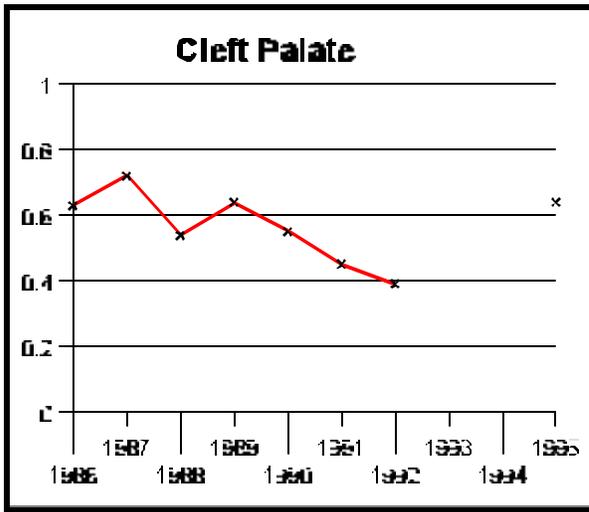
<sup>a</sup> Data is not available for 1993 and 1994.

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 (Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona<sup>a</sup>



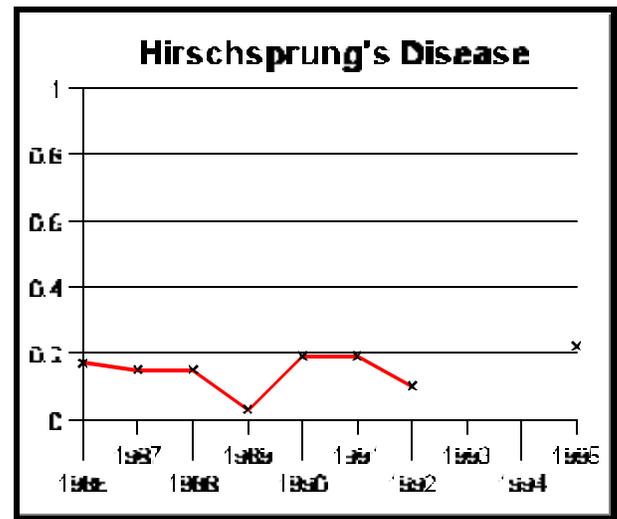
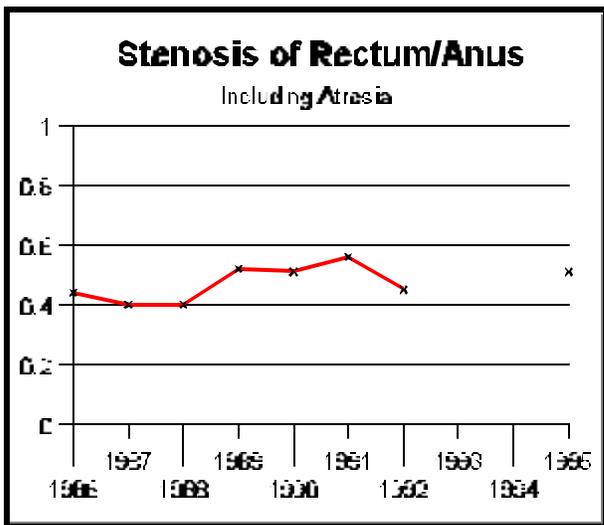
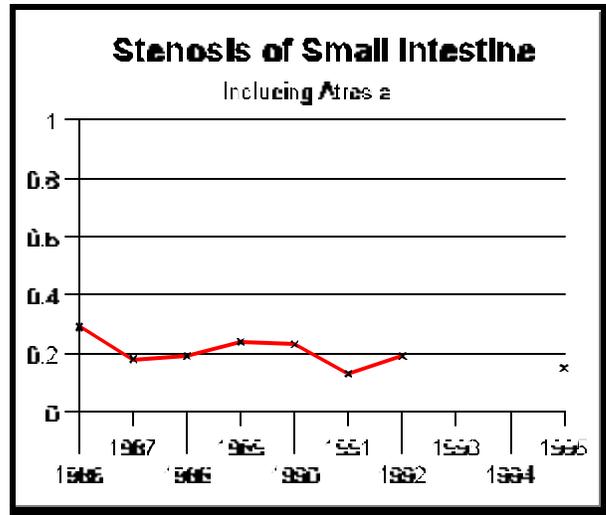
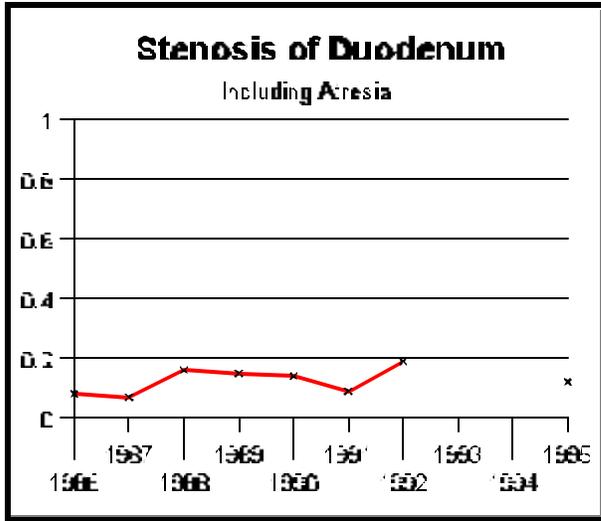
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 (Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona<sup>a</sup>



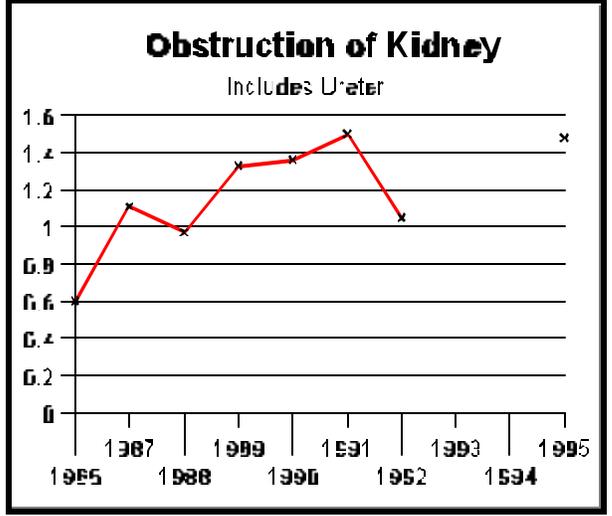
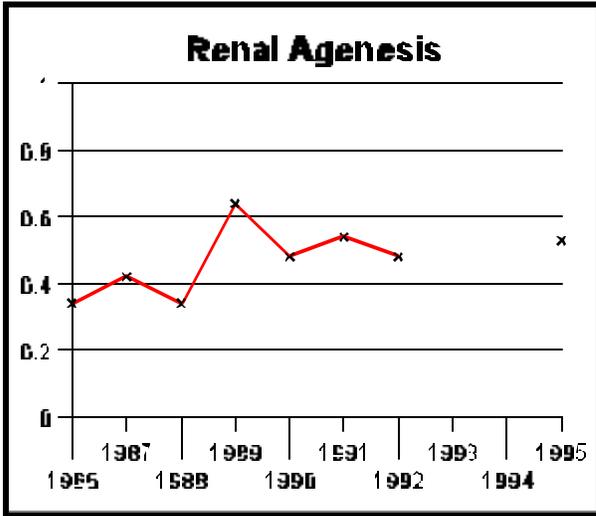
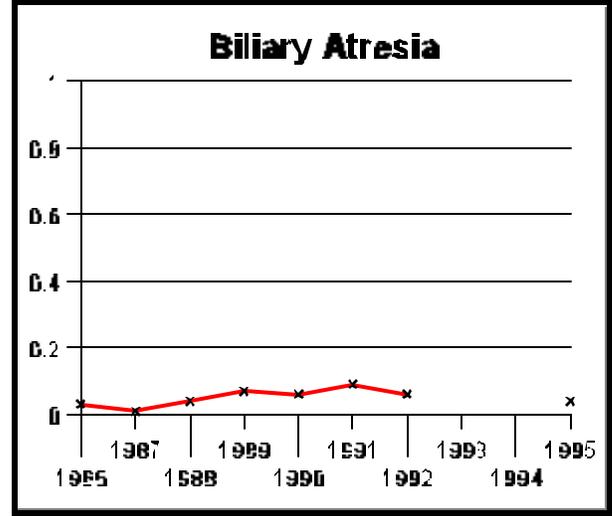
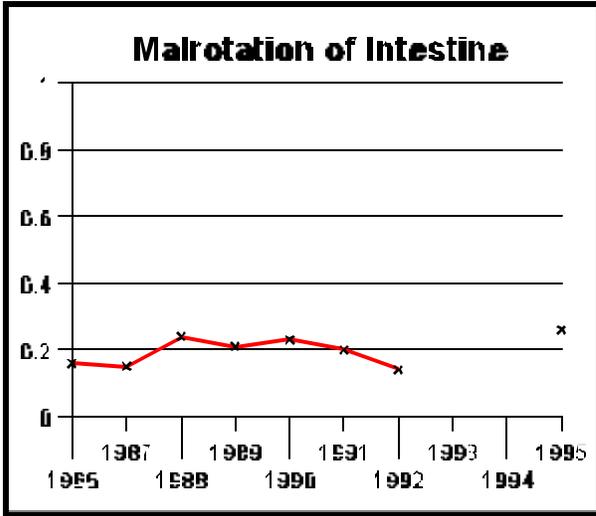
<sup>1</sup> Data is not available for 1993 and 1994.

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 (Live Born and Still born Cases Per 1,000 Live Births & Fetal Deaths), Arizona<sup>a</sup>



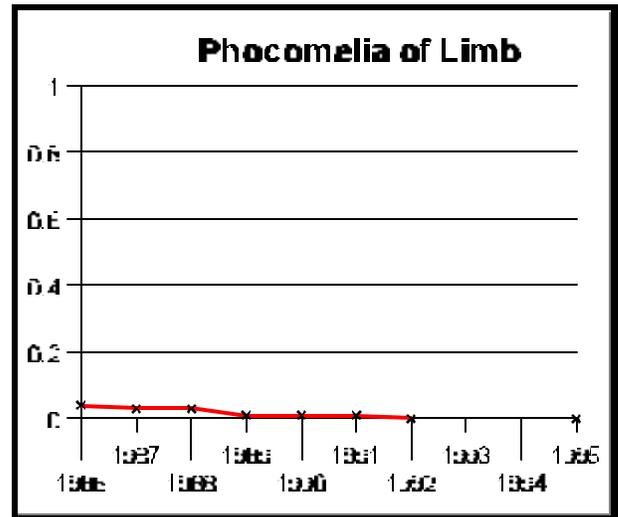
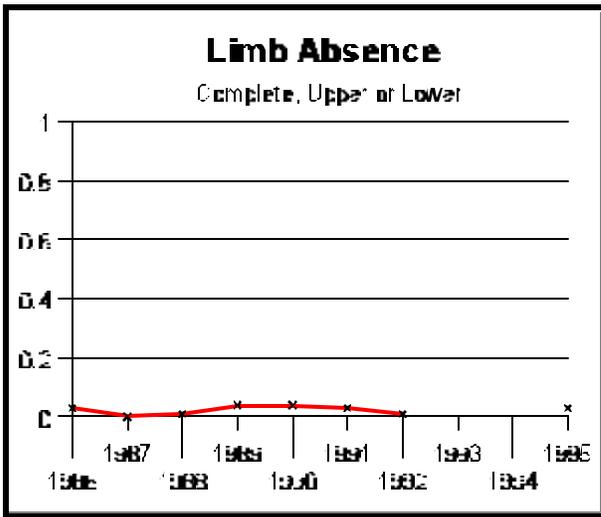
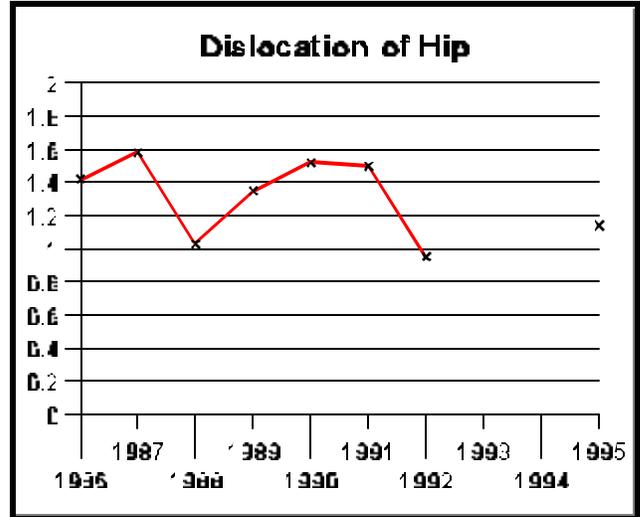
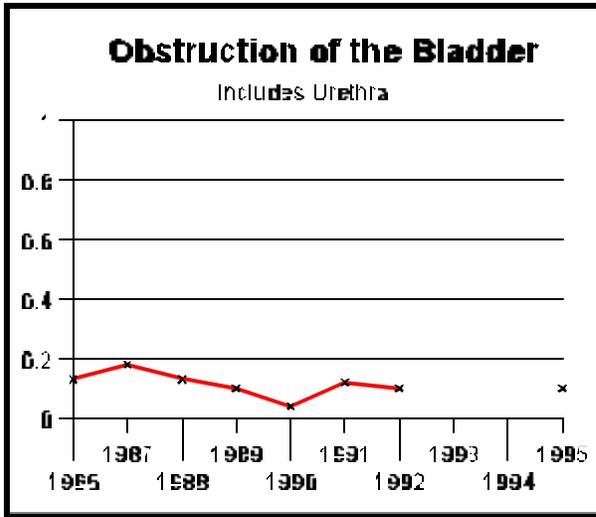
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Figure 2 Continued  
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 (Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona<sup>a</sup>



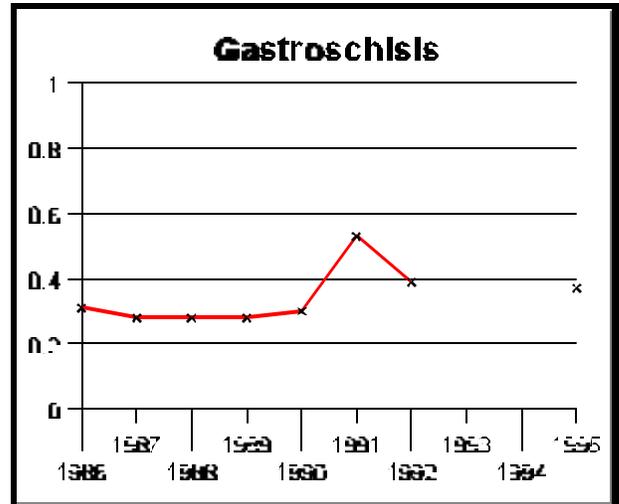
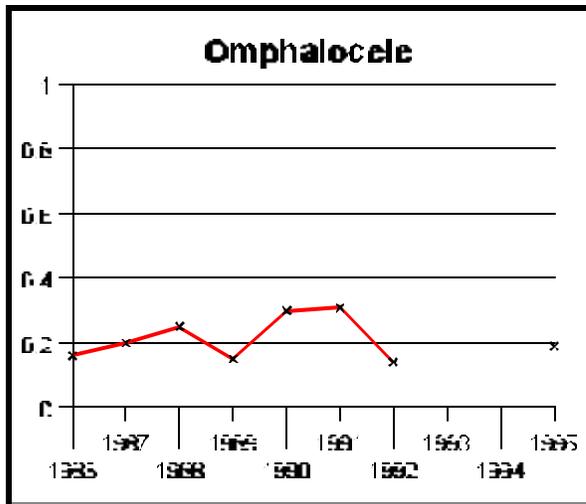
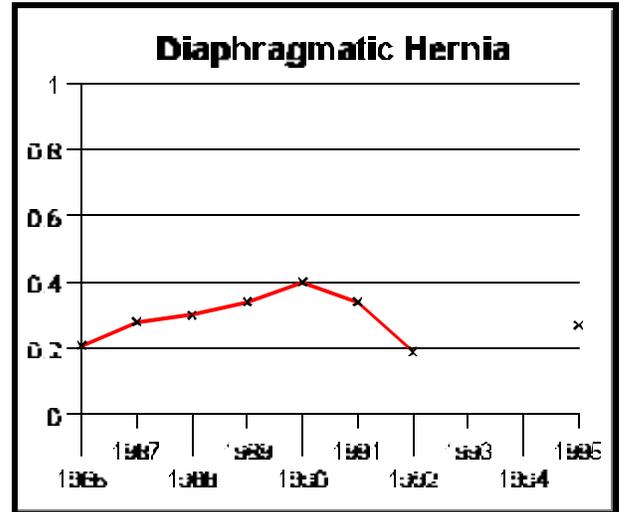
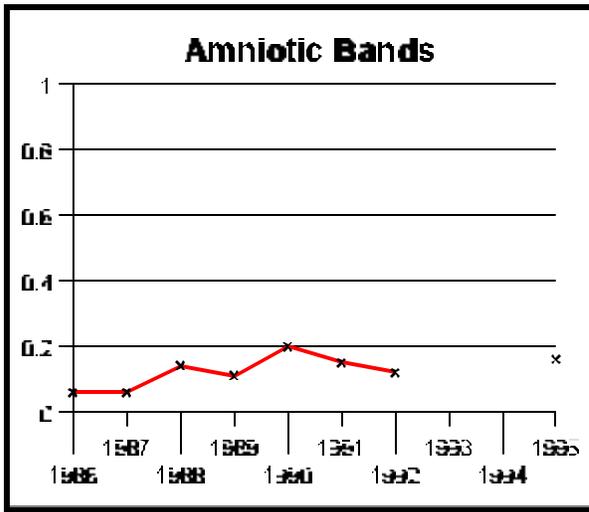
<sup>a</sup>Data is not available for 1993 and 1994.

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 Trends of Selected Congenital Anomalies: Incidence Rates  
 (Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona<sup>a</sup>



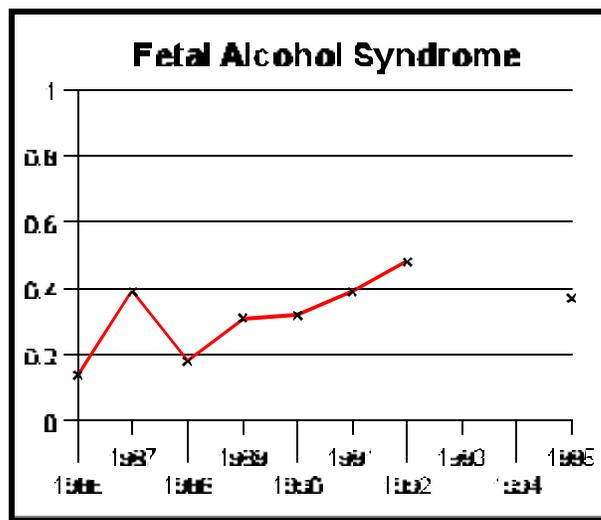
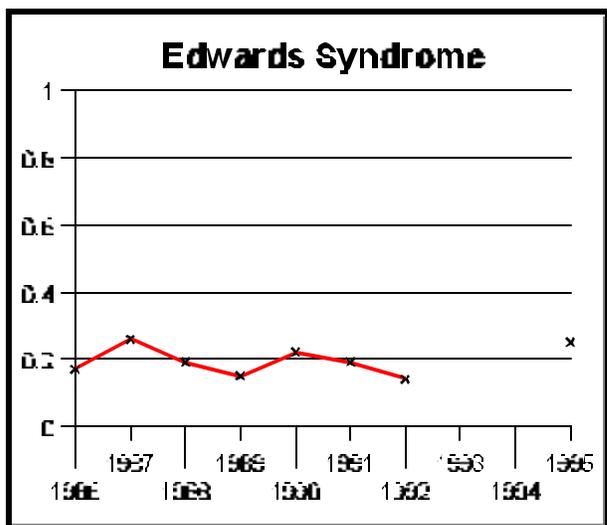
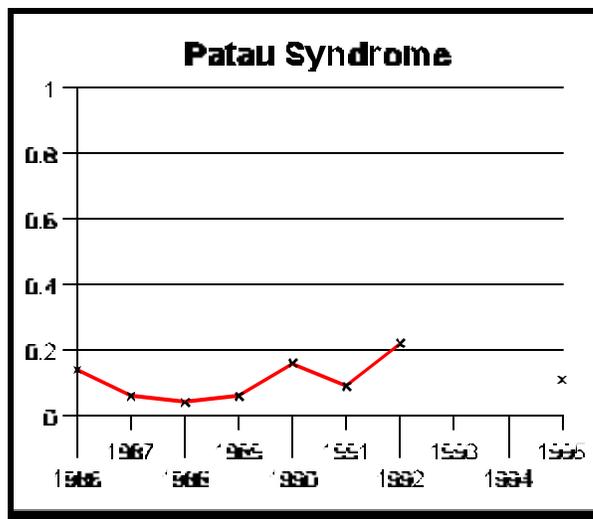
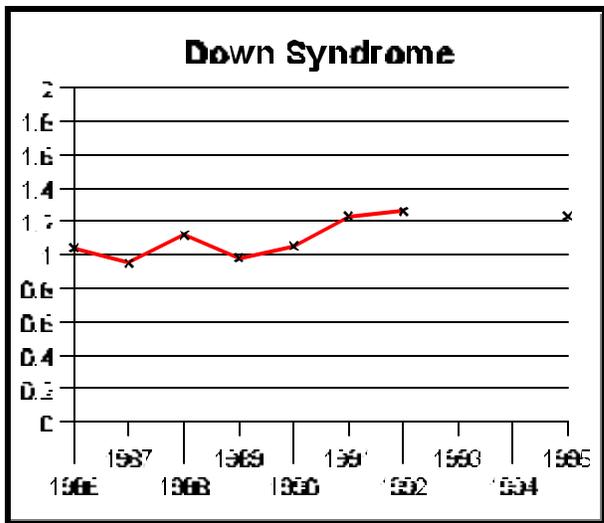
<sup>a</sup> Data is not available for 1993 and 1994.

Figure 2 Continued  
 Trends of Selected Congenital Anomalies: Incidence Rates  
 (Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona<sup>a</sup>



<sup>a</sup>Data is not available for 1993 and 1994.

Figure 2 Continued  
Trends of Selected Congenital Anomalies: Incidence Rates  
(Live Born and Still Born Cases Per 1,000 Live Births & Fetal Deaths), Arizona<sup>a</sup>



<sup>a</sup>Data is not available for 1993 and 1994.

## **RACE/ETHNICITY**

Race and ethnicity categories were determined from the mother's race and Hispanic origin portion of the child's birth certificate. The Hispanic category consists of mothers who answered 'White' to race and 'Hispanic' to the Hispanic origin question. The remaining race categories are White Non-Hispanic, Black, Native American, and Other. The graphs do not show the rates for all of the race/ethnic groups due to the small number of cases of specific birth defects among the subgroups. Table 1 shows the counts used for the calculation of the rates.

Spina Bifida was the most common neural tube defect (NTD) among all races. Rates of Spina Bifida were highest among Hispanics, but is not statistically significant (Figure 3). Many studies have documented that Hispanics have higher rates of Spina Bifida compared to Whites. The same pattern was found in the rates of Anencephaly. The literature also suggests that Blacks experience lower rates of Spina Bifida and Anencephaly compared to Whites; however, rate comparisons of NTDs were limited to White and Hispanic due to small number of cases occurring among other races.

Unlike in previous years, there appears to be a reversal in the rates of abdominal wall defects among Hispanics and Whites, with the higher rate found in Whites (Figure 4). Examining specific defects, the rates for both Gastroschisis and for Omphalocele are higher among Whites, relative to Hispanics. These patterns however, are not statistically significant. Again, rate comparisons among other races was not possible due to small numbers.

Down Syndrome (Trisomy 21) rates were highest among Blacks, followed by Hispanics, Whites and Native Americans (Figure 5). These differences however, are not statistically significant.

Microcephaly rates are highest among Blacks (Figure 6), while Hispanics, Blacks, followed by Whites had the highest rates of pyloric stenosis (Figure 7). Statistical analysis of these rates indicated that these are statistically significant.

### Spina Bifida Incidence Rates By Race/Ethnicity, 1995

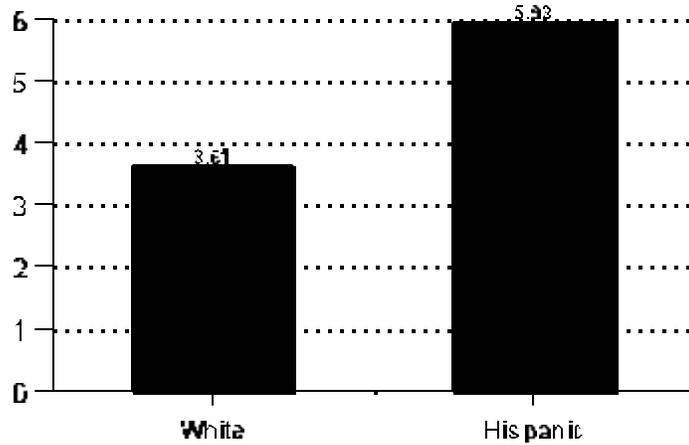


Figure 3. Spina Bifida Incidence Rates (Live Born and Still Born Cases Per 10,000 Live Births and Fetal Deaths) by Race/Ethnicity, 1995

### Abdominal Wall Defect Incidence Rates by Race/Ethnicity, 1995

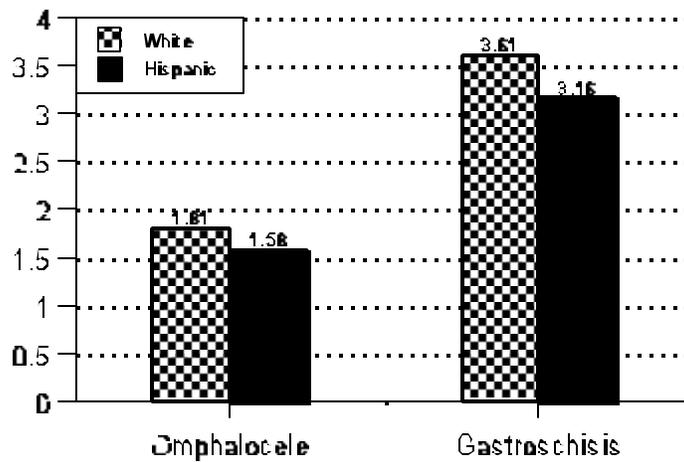


Figure 4. Abdominal Wall Defect Incidence Rates (Live Born and Still Born Cases Per 10,000 Live Births and Fetal Deaths) by Race/Ethnicity, 1995

### Down Syndrome Incidence Rates By Race/Ethnicity, 1995

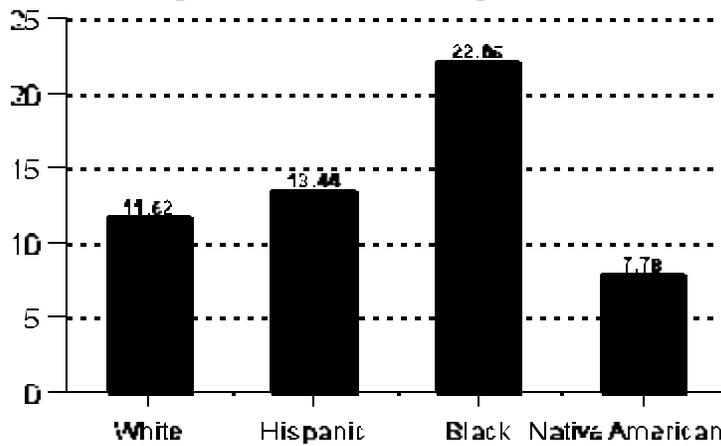


Figure 5. Down Syndrome Incidence Rates (Live Born and Still Born Cases Per 10,000 Live Births and Fetal Deaths) by Race/Ethnicity, 1995

### Microcephaly Incidence Rates By Race/Ethnicity, 1995

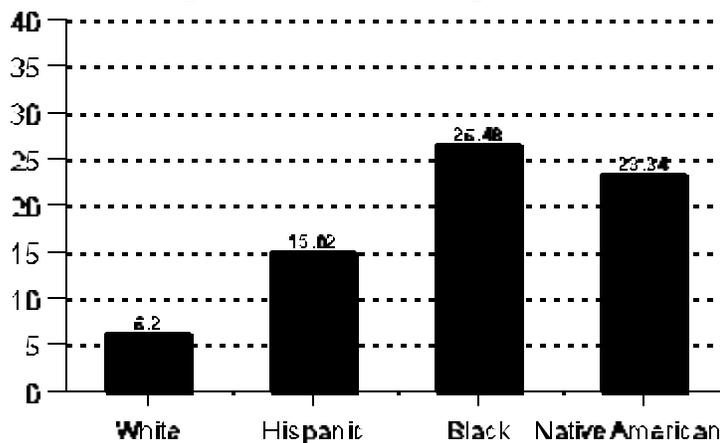


Figure 6. Microcephaly Incidence Rates (Live Born and Still Born Cases Per 10,000 Live Births and Fetal Deaths) by Race/Ethnicity, 1992

### **Pyloric Stenosis Incidence Rates By Race/Ethnicity, 1995**

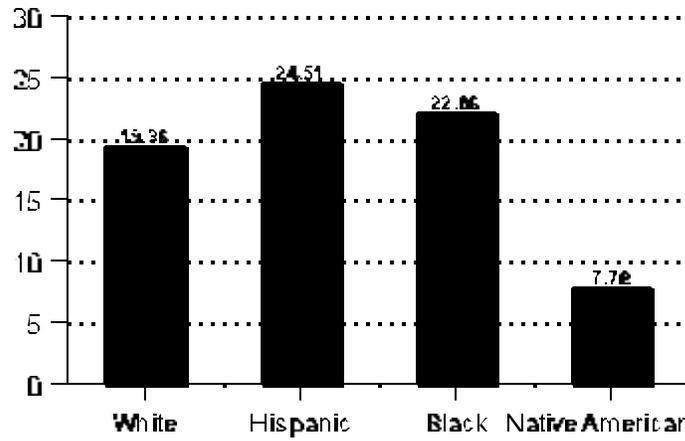


Figure 7. Pyloric Stenosis Incidence Rates (Live Born and Still Born Cases Per 10,000 Live Births and Fetal Deaths) by Race/Ethnicity, 1995

## MATERNAL AGE

Maternal age was divided into five age groups. Observed rates of the “44 selected” congenital anomalies were highest among women 35 years of age and older, followed by the less than 20 age group (Figure 8). Down syndrome (Trisomy 21) rates increased with maternal age (Figure 9). In contrast, rates for gastroschisis decreased as maternal age increased (Figure 10).

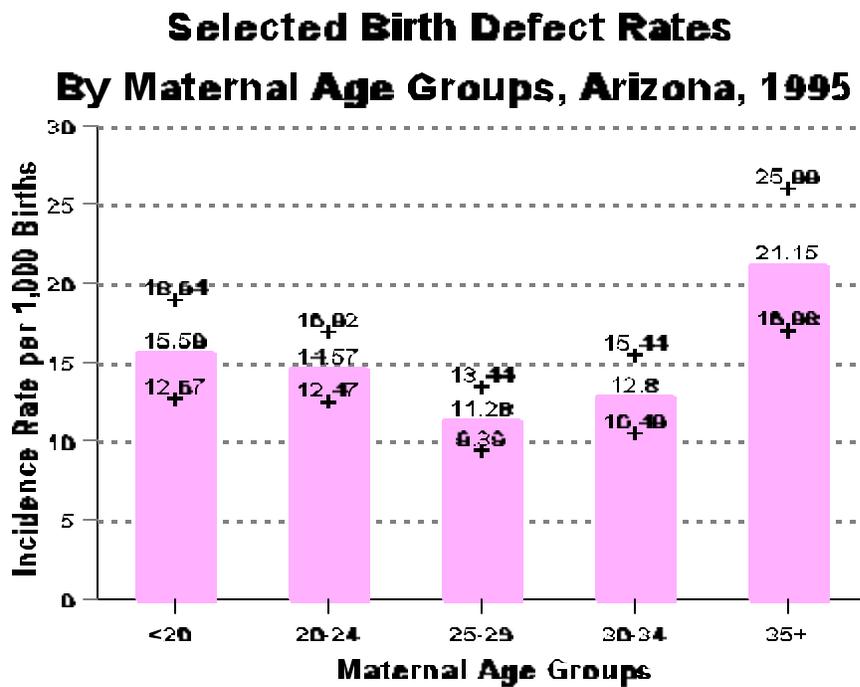


Figure 8. Incidence Rates (Live Born and Still Born Cases Per 1,000 Live Births and Fetal Deaths) for the 44 Selected Defects Listed on Table 1. The + sign indicates the 99% confidence bounds.

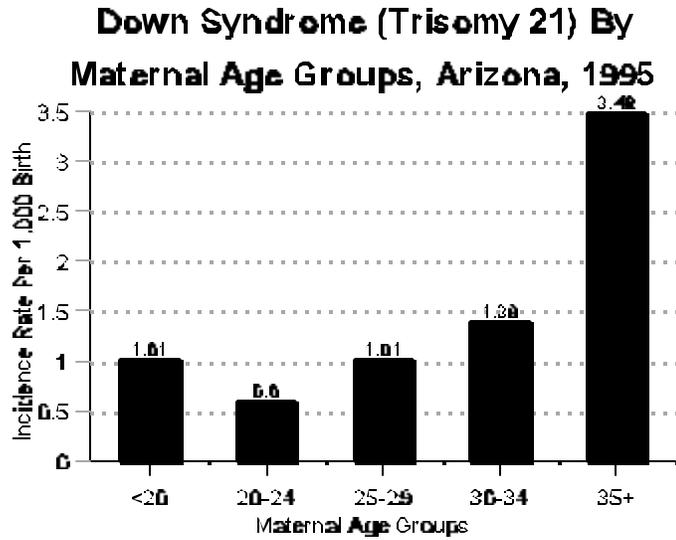


Figure 9. Down Syndrome (Trisomy 21) Rates (Live Born and Still Born Cases Per 1,000 Live Births and Fetal Deaths) by Maternal Age Groups

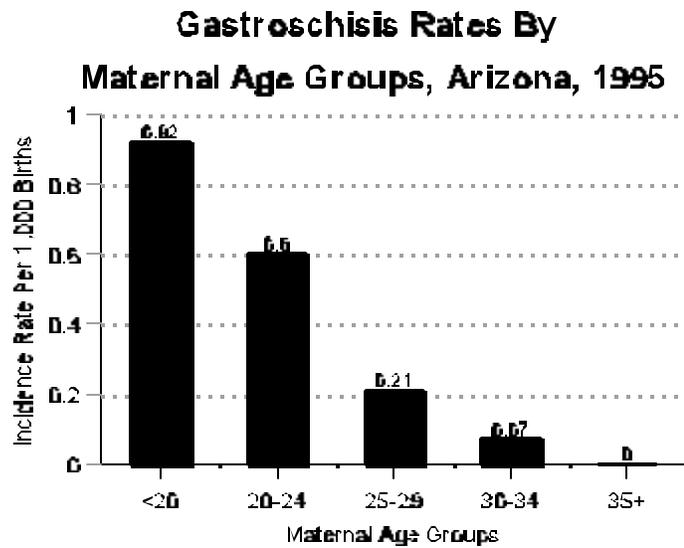


Figure 10. Gastroschisis Rates (Live Born and Still Born Cases Per 1,000 Live Births and Fetal Deaths) by Maternal Age Groups

## COUNTY PROFILES

### Using County Data

The Arizona Birth Defect Monitoring Program (ABDMP) collects birth defect information from all of Arizona's 15 counties. Multiple years are used to give sufficient data to derive statistically stable measures at the county level. Birth defect data from live births are analyzed in this section.

### Dealing With Small Numbers

Analysis of county data is difficult because of normal fluctuations in rates seen in small populations. When dealing with small numbers, it is normal to see fluctuations over time. With rate fluctuations we may see the appearance of birth defects clusters. Most often this is a statistical anomaly. In the rare case that a cluster results from a teratogen a dramatic increase on the scale of 10-fold or greater is usually seen.<sup>13</sup> Another concern with small numbers is protecting a person and their family's confidentiality. Thus, all county level data are aggregated. Incidence rates and confidence intervals are presented when there are 10 or more cases. Z-tests were used to test for the equivalence between the county rates with the state rate.

### Birth Defects by County

The following tables present birth defects by county of mothers' residence. Cases were aggregated for the years 1986 through 1992 and 1995 to provide large enough numbers for analysis. Table 4 shows the total number of 44 selected congenital anomalies for each Arizona county. Gila county had the highest rate of congenital anomalies, whereas Greenlee and La Paz counties had the lowest reported birth defects rates. Statistical analysis indicate that the overall birth defect rates of Gila is significantly higher than the state rate at the 0.01 level. Table 5 examines the 44 selected anomalies by race and county. For Whites, Maricopa county has the highest rate, followed by Yavapai county. For Hispanics, Yavapai county has the highest rate of congenital anomalies and Pima county has the highest rate for Blacks. Graham and Gila counties have the highest rates for Native Americans. The rates for each race/ethnicity group for each county is compared with that of the state rate for that race/ethnic group. Statistical analysis of the data indicate that the Apache county rates for Whites is significantly lower than the state rate for whites at the 99 percent level. In contrast, the data show that the Gila county rates for Native Americans is significantly higher at the 0.01 level than the state rate for Native Americans. Other county rates for the other race/ethnic groupings were not significantly different from the state rate for that race/ethnic group.

Table 4  
 Selected Birth Defect Incidence Rates by County 1986-1992, 1995  
 Incidence Rates (Live Born Cases Per 1,000 Live Births)

COUNTY	CASES 1986-1992, 1995	RATE	99% CONFIDENCE INTERVAL
Arizona	7146	13.36	12.96-13.78
Apache	192	13.94	11.48-16.76
Cochise	156	11.68	9.41-14.32
Coconino	216	14.03	11.69-16.69
Gila	86	16.31	12.13-21.42
Graham	43	12.62	08.21-18.50
Greenlee	7	-	-
Maricopa	4,186	13.34	12.82-13.89
Mohave	124	11.05	08.66-13.88
Navajo	241	15.89	13.37-18.72
Pima	1176	13.17	12.20-14.20
Pinal	229	13.71	11.49-16.23
Santa Cruz	72	12.70	09.17-17.10
Yavapai	132	13.07	10.32-16.30
Yuma	271	14.12	12.00-16.49
La Paz	15	9.68	04.43-18.20

44 selected birth defects (see Table 1); - =Insufficient cases for rate and confidence interval calculations

Table 5 – Selected Birth Defects by Race/Ethnicity by County, 1986-1992, 1995  
Incidence Rates (Live Born Cases Per 1,000 Live Births)

COUNTY	WHITE	HISPANIC	BLACK	NATIVE AMERICAN	OTHER
	Rate 99% C.I.	Rate 99% C.I.	Rate 99% C.I.	Rate 99% C.I.	Rate 99% C.I.
Arizona	12.5 11.96-13.02	13.90 13.14-14.68	12.12 10.37-14.08	18.03 16.47-19.68	10.92 8.07-14.12
Apache	1.92 0.85-3.68	- -	- -	14.99 12.23-18.17	- -
Cochise	12.00 8.79-15.98	11.79 8.23-16.31	9.08 3.54-18.85	- -	- -
Coconino	9.78 6.85-13.50	13.20 6.62-21.59	- -	17.54 13.74-22.03	- -
Gila	10.42 5.82-17.10	10.96 4.68-21.54	- -	27.74 18.23-40.31	- -
Graham	9.66 4.98-16.76	- -	- -	29.94 13.70-56.30	- -
Greenlee	- -	- -	- -	- -	- -
Maricopa	12.86 12.21-13.54	14.34 13.31-15.42	11.90 9.82-14.26	18.90 15.35-23.00	9.69 6.60-13.68
Mohave	10.77 8.21-13.86	11.66 5.34-21.94	- -	- -	- -
Navajo	11.77 8.07-17.25	14.55 6.44-27.94	- -	17.76 14.49-21.53	- -
Pima	12.21 10.89-13.59	13.53 11.97-15.23	14.94 10.46-20.62	19.60 14.22-26.29	12.49 6.57-21.41
Pinal	12.01 10.91-13.62	13.27 9.81-17.51	- -	21.91 14.86-31.05	- -
Santa Cruz	- -	13.24 9.41-18.06	- -	- -	- -
Yavapai	12.84 9.85-16.42	15.67 8.51-26.25	- -	- -	- -
Yuma	12.22 9.00-16.18	15.04 12.24-18.27	- -	- -	- -
La Paz	- -	- -	- -	- -	- -

- =Insufficient cases for rate and confidence interval calculations.

## **SENTINEL DEFECTS**

Tables 6-10 look at the following sentinel defects: chromosomal defects, oral clefts, neural tube defects, abdominal wall defects, and heart defects. These defects were chosen because of their significant public health impact.

### Chromosomal Defects

In this section (Table 6) of the report, chromosomal defects refers to Down Syndrome, Patau syndrome, and Edwards syndrome. Chromosomal abnormalities include either missing or extra genetic components that result in various levels of abnormal physical features, structural defects, and mental retardation. The most common chromosomal defect is Down Syndrome. We also know that the risk of a trisomy affected pregnancy increases with maternal age; however, this risk is still relatively low. Recent research also suggests that about 20 percent of instances of Down Syndrome are paternal in origin. Table 6 shows that rates for chromosomal defects are highest for Gila county (2.28 per 1,000 live births), followed by Navajo county at 1.91 per 1,000 live births. The lowest rates are in Greenlee, La Paz, Graham, Santa Cruz and Mohave counties. A comparison of the county rates with the state rate for chromosomal defects indicate that there are no significant differences between the county rates and that of the state.

### Oral Clefts

Table 7 presents information on cleft lip and cleft palate. Cleft palate is a failure of the palate to fuse properly, forming a grooved fissure in the roof of the mouth. Cleft lip is a failure of the maxillary and median nasal processes to fuse, forming a fissure in the lip. Babies born with oral clefts require corrective surgery, and may have feeding problems. Mothers who smoke 20 or more cigarettes a day are more than twice as likely to have a baby born with cleft lip and/or cleft palate.<sup>14</sup> Apache county, followed by Gila county have the highest rates for oral clefts at 3.05 and 2.84 per 1,000 live births respectively. Greenlee, La Paz, Graham and Maricopa counties, on the other hand have the lowest rates. The state rate for oral clefts is 1.76 per 1,000 live births from 1986 to 1992 and 1995. Results of the z-tests comparing the oral clefts rates of the counties with the state show that there are no statistical differences between these rates. A map showing the incidence rates of oral clefts by county for 1986 to 1992 and 1995 are in Figure 10. In Figure 11 is a map displaying the distribution of oral cleft cases in 1995. The distribution of cleft palate cases and the distribution of cleft lip with and without cleft palate cases are also presented. It can be seen from the maps that the cases appear to be widely dispersed across the state (Figure 11).

### Neural Tube Defects

Anencephaly, spina bifida, and encephalocele make up the neural tube defects (NTDs) presented in Table 8. The two major NTDs are anencephaly and spina bifida. Anencephaly is an absence of the skull, with cerebral hemispheres reduced or completely missing. Spina bifida is a defective closure of the bony encasement of the spinal cord, through which the cord and meninges may or may not protrude. Women who take multivitamins and/or eat a diet rich in folate before conception and during the first trimester<sup>16,17</sup> can significantly reduce their risk of an NTD affected pregnancy. The data show that rate for neural tube defect for the state is 0.71 per 1,000 live births. A comparison between the county rates and the state rate indicate that Navajo county has the highest rate for neural tube defect at 1.25 per 1,000 live births, but is not statistically different from the state rate.

### Abdominal Wall Defects

This category includes omphalocele and gastroschisis (Table 9). Gastroschisis is a congenital opening of the abdominal wall, often with protrusion of the intestines. Omphalocele is a membrane-covered protrusion of an abdominal organ through the abdominal wall at the umbilicus. According to a recent study, young mothers are 4 times as likely as women in their late 20s to have a child with gastroschisis.<sup>15</sup> Other risk factors for gastroschisis are maternal use of cocaine, aspirin, amphetamines, and exposure to solvents. Table 9 presents the incidence rate for the state at 0.50 per 1,000 live births. Mohave county has the highest incidence rate for abdominal wall defects. There are no statistical differences between the county rates and the state rate for abdominal wall defects.

### Heart Defects

This category includes truncus Arteriosus, transposition of great vessels, Tetralogy of Fallot, single ventricle, aortic stenosis, hypoplastic left heart, and total anomalous pulmonary venous (Table 10). Table 10 shows that state rate for heart defects is 1.44 per 1,000 live births. Navajo county and Gila county have the highest rate for heart defects at 2.11 and 2.09 per 1,000 live births. The county rates for heart defects were found not to be statistically different from the rate at the state level.

Table 6  
 Chromosomal Defects - Rates by County 1986-1992, 1995  
 Incidence Rate (Live Born Cases per 1,000 Live Births)

COUNTY	CASES 1986-1992 & 1995	RATE	99% CONFIDENCE INTERVAL
Arizona	707	1.32	1.20-1.46
Apache	25	1.82	1.01-2.98
Cochise	22	1.65	0.88-2.79
Coconino	21	1.36	0.72-2.34
Gila	12	2.28	0.93-4.59
Graham	6	-	-
Greenlee	0	-	-
Maricopa	401	1.28	1.12-1.45
Mohave	13	1.16	0.49-2.28
Navajo	29	1.91	1.12-3.03
Pima	112	1.25	0.97-1.59
Pinal	22	1.32	0.70-2.23
Santa Cruz	7	-	-
Yavapai	13	1.29	0.55-2.53
Yuma	21	1.09	0.58-1.88
La Paz	3	-	-

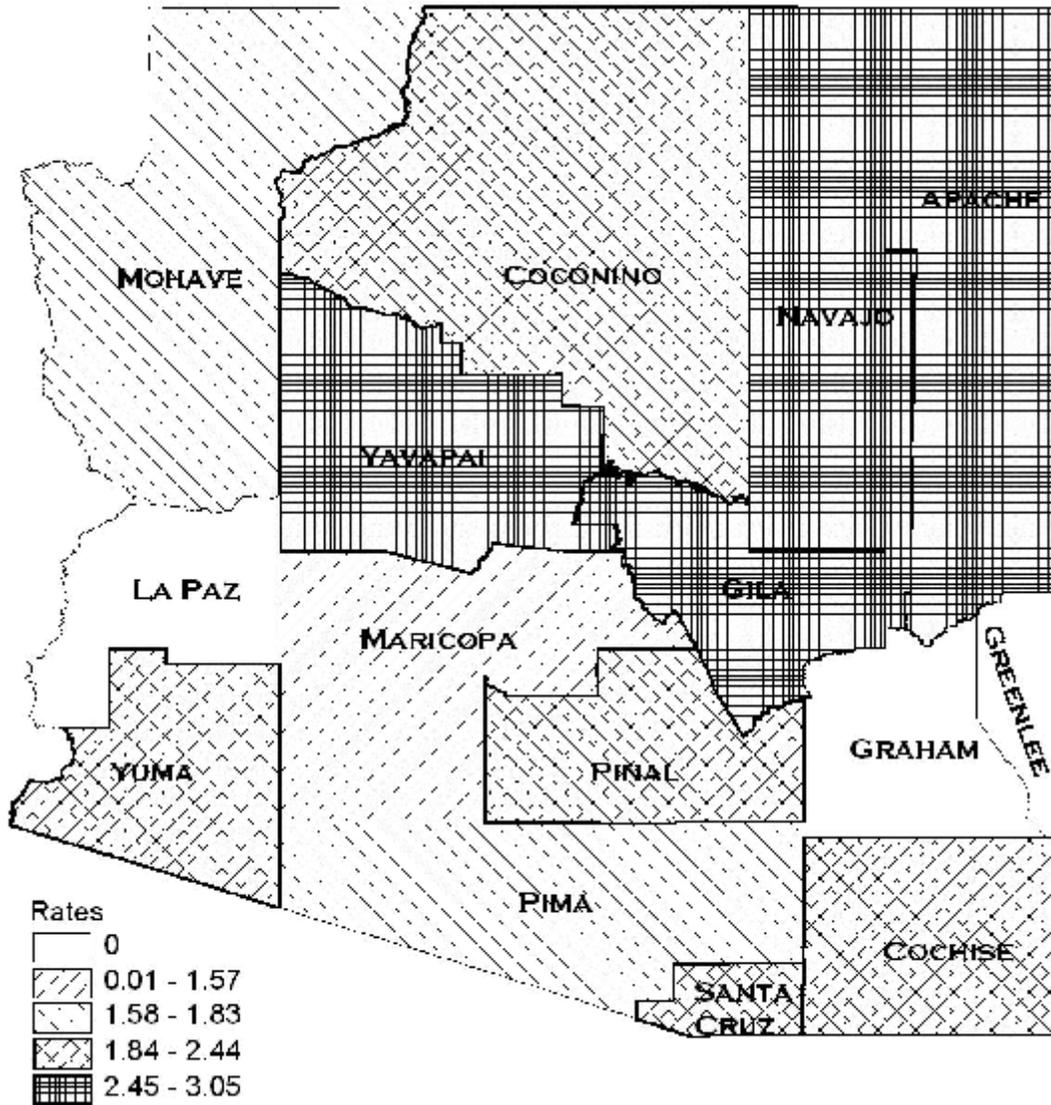
Chromosomal defects include three-digit codes R01, R02, R03 (see Table 1);  
 - =Insufficient cases for rate and confidence interval calculations.

Table 7  
 Oral Clefts - Rates by County 1986-1992, 1995  
 Incidence Rates (Live Born Cases Per 1,000 Live Births)

COUNTY	CASES 1986-1992 & 1995	RATE	99% CONFIDENCE INTERVAL
Arizona	944	1.76	1.62-1.92
Apache	42	3.05	1.97-4.49
Cochise	28	2.10	1.21-3.35
Coconino	37	2.40	1.51-3.62
Gila	15	2.84	1.30-5.35
Graham	9	-	-
Greenlee	0	-	-
Maricopa	494	1.57	1.40-1.77
Mohave	19	1.69	0.86-2.98
Navajo	45	2.97	1.95-4.31
Pima	150	1.68	1.35-2.07
Pinal	32	1.92	1.15-2.98
Santa Cruz	12	2.12	0.87-4.27
Yavapai	23	2.28	1.24-3.81
Yuma	36	1.88	1.17-2.84
La Paz	2	-	-

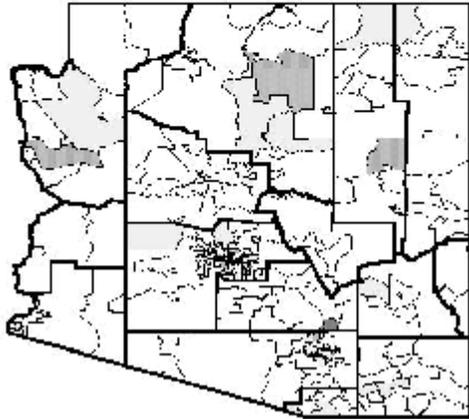
Oral Clefts include three-digit codes F01 & F02 (see Table 1); - =Insufficient cases for rate and confidence interval calculations.

**FIGURE 11:  
ORAL CLEFTS INCIDENCE RATES  
PER 1,000 LIVE BIRTHS  
ARIZONA, 1986-1992, 1995**

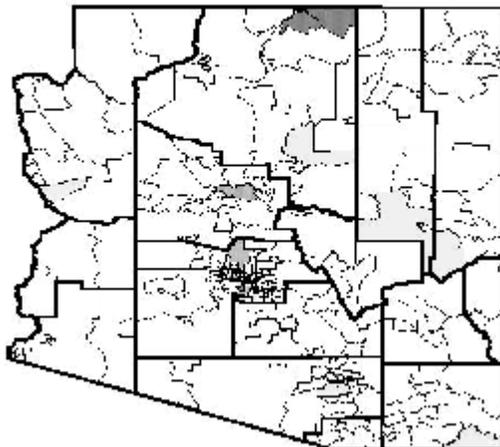


**FIGURE 12: DISTRIBUTION OF ORAL CLEFTS CASES IN ARIZONA, 1995**

**TOTAL CASES OF CLEFT LIP  
WITH OR WITHOUT CLEFT PALATE**



**TOTAL CASES OF CLEFT PALATE**



**TOTAL CASES OF ORAL CLEFT  
BY ZIP CODES IN ARIZONA**

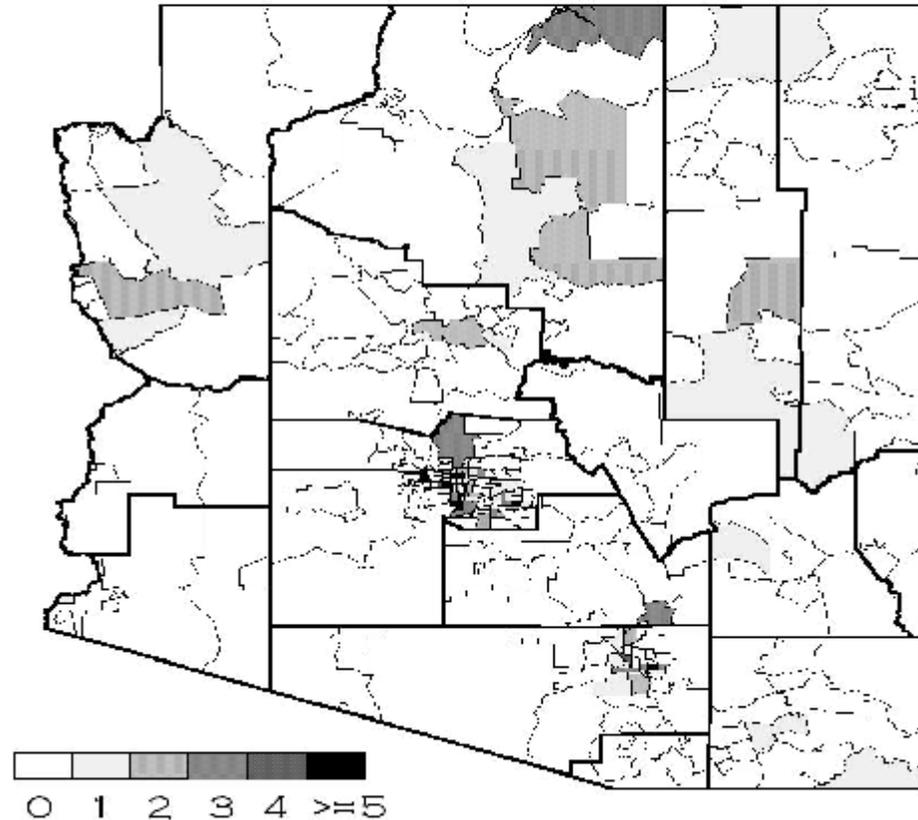


Table 8  
 Neural Tube Defects - Rates by County 1986-1992, 1995  
 Incidence Rates (Live Born Cases Per 1,000 Live Births)

COUNTY	CASES 1986-1992 & 1995	RATE	99% CONFIDENCE INTERVAL
Arizona	382	0.71	0.62-0.81
Apache	9	-	-
Cochise	6	-	-
Coconino	6	-	-
Gila	6	-	-
Graham	2	-	-
Greenlee	0	-	-
Maricopa	228	0.73	0.61-0.86
Mohave	7	-	-
Navajo	19	1.25	0.63-2.20
Pima	55	0.62	0.42-0.86
Pinal	9	-	-
Santa Cruz	6	-	-
Yavapai	8	-	-
Yuma	18	0.94	0.46-1.67
La Paz	3	-	-

Neural Tube defects include three-digit codes A01, A02, A03 & A13.  
 (see Table 1); - =Insufficient cases for rate and confidence interval calculations.

Table 9  
Abdominal Wall Defects - Rates by County 1986-1992, 1995  
Incidence Rates (Live Born Cases Per 1,000 Live Births)

COUNTY	CASES 1986-1992 & 1995	RATE	99% CONFIDENCE INTERVAL
Arizona	266	0.50	0.42-0.58
Apache	3	-	-
Cochise	3	-	-
Coconino	6	-	-
Gila	3	-	-
Graham	2	-	-
Greenlee	0	-	-
Maricopa	150	0.48	0.38-0.59
Mohave	10	0.89	0.33-1.91
Navajo	7	-	-
Pima	57	0.64	0.44-0.89
Pinal	7	-	-
Santa Cruz	2	-	-
Yavapai	6	-	-
Yuma	10	0.52	0.19-1.12
La Paz	0	-	-

Abdominal Wall defects include three-digit codes N02 & N04 (see Table 1);  
- =Insufficient cases for rate and confidence interval calculations.

Table 10  
Heart Defects - Rates by County 1986-1992, 1995  
Incidence Rates (Live Born Cases Per 1,000 Live Births)

COUNTY	CASES 1986-1992, & 1995	RATE	99% CONFIDENCE INTERVAL
Arizona	773	1.44	1.31-1.59
Apache	16	1.16	0.55-2.14
Cochise	18	1.35	0.67-2.41
Coconino	19	1.23	0.62-2.17
Gila	11	2.09	0.81-4.33
Graham	3	-	-
Greenlee	2	-	-
Maricopa	454	1.48	1.28-1.63
Mohave	10	0.89	0.33-1.91
Navajo	32	2.11	1.27-3.28
Pima	136	1.52	1.21-1.89
Pinal	20	1.20	0.62-2.08
Santa Cruz	7	-	-
Yavapai	18	1.78	0.88-3.18
Yuma	27	1.41	0.81-2.27
La Paz	0	-	-

Heart defects include three-digit codes D01, D02, D03, D04, D51, D52 & D53 (see Table 1); - =Insufficient cases for rate and confidence interval calculations.

**APPENDIX 1**  
Conditions Included in the Figures

A general listing of all conditions used to establish the rates shown in the figures in this report is shown below. Some specific inclusions and exclusions are not listed. As mentioned above, ABDMP collects data on 140 conditions or variations of conditions. The conditions listed below include over 99% of all cases reported through ABDMP.

<u>BPA 3-Digit Code*</u>	<u>General Code Descriptor</u>
740 - 759	“Congenital Anomalies” Including but not limited to:
740	Anencephaly and similar anomalies
741	Spina Bifida
742	Other Anomalies of the Nervous System
743	Anomalies of the eye
744	Anomalies of the ear, face, and neck
745	Certain anomalies of the heart
746	Other anomalies of the heart
747	Anomalies of the circulatory system
748	Anomalies of the respiratory system
749	Cleft palate and cleft lip
750	Other anomalies of the upper alimentary tract
751	Anomalies of the digestive system
752	Anomalies of the genital organs
753	Anomalies of the urinary system
754	Certain musculoskeletal deformities
755	Other anomalies of limbs
756	Other musculoskeletal anomalies
757	Congenital anomalies of the integument
758	Chromosomal anomalies
759	Other and unspecified anomalies
<u>ICD-9-CM Code**</u>	
658.80-658.83	Amniotic bands
760.71	Fetal alcohol syndrome

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\* British Pediatric Association Classification of Diseases

\*\* International Classification of Disease - 9<sup>th</sup> Edition, Clinical Modification

## APPENDIX 2

### Conditions (Composite Categories) Shown in the Tables

A listing of the conditions analyzed in the Tables contained in this report is shown below.

The 44 conditions listed here can be described almost completely by codes created by the Centers for Disease Control's Metropolitan Atlanta Congenital Defects Program (MACDP). These codes are listed in the left below, with exceptions noted. On the right below are the corresponding British Pediatric Association (BPA) Classification of Diseases codes.

In the Tables, a case is listed only once in each MACDP code category, even when it has more than one diagnosis from the category.

MACDP	Condition	BPA Code		
<u>CENTRAL NERVOUS SYSTEM</u>				
A01	Anencephaly	740.00	740.02	740.03
		740.08	740.10	740.20
		740.21	740.29	
A02	Spina Bifida with Hydrocephaly	741.00	741.01	741.02
		741.03	741.04	741.05
		741.06	741.07	741.08
		741.09	741.085	741.086
		741.087		
A03	Spina Bifida without Hydrocephaly	741.90	741.91	741.92
		741.93	741.94	741.98
		741.985	741.99	
A13	Encephalocele	742.00	742.08	742.09
		742.085	742.086	
A15	Hydrocephaly	742.30	742.31	742.38
		742.39		
A16	Microcephaly	742.10		

## EYE AND EAR

B03	Glaucoma	743.20	743.21	743.22
B04	Cataract	743.32	743.325	743.326
B51*	Anophthalmia	743.00		
B52*	Microphthalmia	743.10		
B54*	Ear anomaly with hearing loss	744.00	744.01	744.02
		744.03	744.09	744.21

## CARDIAC

D01	Truncus Arteriosus	745.00	745.01	
D02	Transposition of great vessels	745.10	745.11	745.12
		745.18	745.19	
D03	Tetralogy of Fallot	745.20	745.21	746.84
D04	Single ventricle	745.30		
D51*	Aortic stenosis	746.30	746.31	
D52*	Hypoplastic left heart	746.70		
D53*	Total anomalous pulmonary venous	747.42		

## RESPIRATORY

E01	Choanal atresia	748.00		
E06	Agenesis of lung	748.50	748.51	

## OROFACIAL - GASTRO-INTESTINAL

F01	Cleft palate	749.00	749.01	749.02
		749.03	749.04	749.05
		749.06	749.07	749.09
F02	Cleft lip with or without cleft palate	749.10	749.11	749.12
		749.19	749.20	749.21
		749.22	749.29	
F08	Pyloric Stenosis	750.51		

F09	Tracheo-esophageal fistula or	750.30	750.31	750.32
		750.325	750.33	
F14	Stenosis or atresia of duodenum	751.10		
F15	Other stenosis or atresia of small	751.11	751.12	751.19
F16	Stenosis or atresia of rectum or anus	751.21	751.22	751.23
		751.24		
F17	Hirschsprung's Disease	751.30	751.31	751.32
		751.33		
F18	Malrotation of intestine	751.40	751.41	751.42
		751.49	751.495	
F21	Biliary atresia	751.65		
<u>GENITO-URINARY</u>				
H01	Renal agenesis	753.00	753.01	
H06	Obstruction of kidney or ureter	753.20	753.21	753.22
		753.29	753.40	753.42
H09	Bladder or urethra obstruction	753.600	753.61	753.62
		753.63		
<u>MUSCULOSKELETAL</u>				
J03	Dislocation of hip	754.30		
J51*	Complete absence of upper or lower	755.20	755.30	755.40
J52*	Phocomelia of Limb	755.21	755.31	755.41
K05	Amniotic bands	658.80		
N01	Diaphragmatic hernia	756.61	756.615	756.616
		756.617		
N02	Omphalocele	756.70		
N04	Gastroschisis	756.71		

SYNDROMES

R01	Down Syndrome (Trisomy 21)	758.00	758.01	758.02
		758.03	758.04	758.09
R02	Patau Syndrome (Trisomy 13)	758.10	758.11	758.12
		758.13	758.19	
R03	Edwards Syndrome (Trisomy 18)	758.20	758.21	758.22
		758.23	758.29	758.295
S02	Fetal Alcohol Syndrome	760.71	760.718	

\* Codes created by CBDMP

### APPENDIX 3

**PRECISION** (of diagnosis) (Box 32 FORM 01)

Code

- 1 Not stated (For Mental Retardation and Cerebral Palsy Diagnoses ONLY - Form 03)
- 2 Probably not a birth defect ("Ruled out" included in this category), "NO"
- 3 "vs" (versus) or "or"
- 4 "Rule out" included in diagnosis (i.e., rule out anencephaly), "Doubtful," "Equivocal", "Questionable," "R/O"
- 5 "Suggestive of"
- 6 "Suspected," "suspicious"
- 7 "Possible," "may have," "could be," "felt to be," "Perhaps," "consider"
- 8 "Consistent with," "most likely"
- 9 "Compatible with," "like," "appears"
- 10 "Probable," "presume"
- 11 -----
- 12 Precise diagnosis, "characteristic of"
- 13 Precise diagnosis with congestive heart failure or medicated with Digoxin, Drisdol, Chlorothiazide, Lasix, Lanoxin, Aldactone or diuretics (only for VSD, PDA, ASD, or Patent Foramen Ovale)

## APPENDIX 4

### Abbreviations

ABDMP	- Arizona Birth Defects Monitoring Program
ADHS	- Arizona Department of Health Services
BPA	- British Pediatric Association
CBDMP	- California Birth Defects Monitoring Program
CDC	- Centers for Disease Control and Prevention
CRS	- Children's Rehabilitative Services (ADHS)
ICD	- International Classification of Disease
MACDP	- Metropolitan Atlanta Congenital Defects Program

## APPENDIX 5

### Exclusion List - ABDMP Non-reportable Birth Defects Cases

The following potential cases are not included in the ABDMP report for 1995:

- ! Duplicate abstracts and/or duplicated anomalies (cases with multiple abstracts; child seen at more than one facility), i.e., duplicate cases are merged and counted once.
- ! “Possibles” abstracted for review and consideration and subsequently determined to have conditions or defects that were not reportable - referring to CDC and CBDMP list of `excludables.
- ! Babies born to mothers whose residence is out-of-state or out-of-country (i.e., nonresident cases).
- ! “Negatives,” that is of cases ruled-out during case finding and medical record review.
- ! “No Match” cases: Birth Certificate was not on file and state of birth cannot be confirmed as Arizona.
- ! Cases among aborted fetuses less than 20 weeks gestation and weighing less than 500 grams. These cases were excluded because there is no reliable denominator that can be used to generate a birth defect rate.
- ! Prenatally diagnosed cases that have not resulted in a live birth or stillbirth are not included. The ABDMP is not currently visiting prenatal diagnostic centers to identify cases.
- ! Defects with a “precision of diagnosis” code 1-7 are excluded. Only those defects diagnosed at the higher levels of precision (8 or above) are included. Refer to Appendix 3 for list of Precision of Diagnosis codes.
- ! Cases only diagnosed outside of the hospital setting are not included in the ABDMP.

## APPENDIX 6

### References

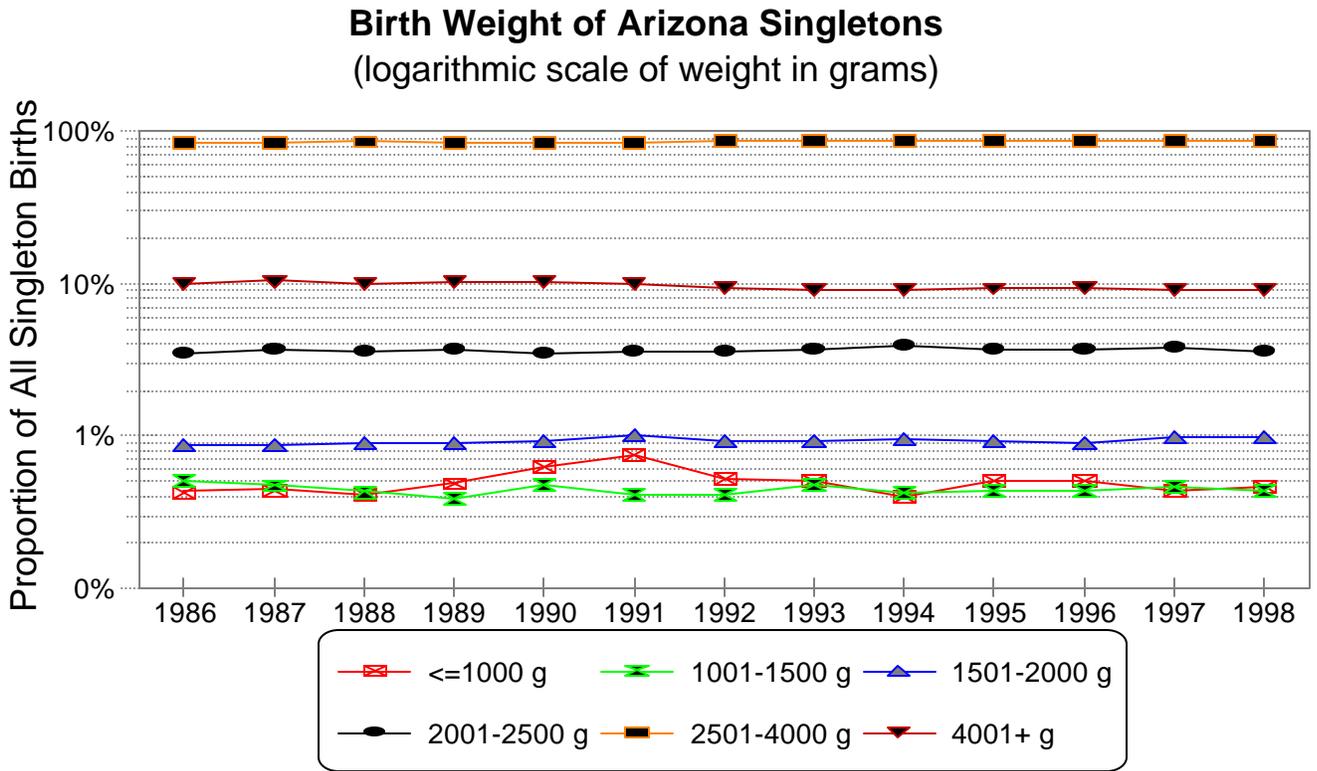
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# APPENDIX 7

## Birth Weight

The Arizona Birth Defects Monitoring Program monitors the distribution of birth weight. The data is obtainable from the birth certificate and may allow the detection of major shifts over time in the proportion of newborns with low birth weight.<sup>18,19</sup>



## APPENDIX 8

### Other Defects Collected by the ABDMP Incidence Rates Per 1,000 Live Births and Fetal Deaths Arizona, 1995

<u>CODE</u>	<u>DEFECT GROUP</u>	<u>TOTAL</u>	<u>RATE</u>
A00 A17	CENTRAL NERVOUS SYSTEM Reduction Deformities of Brain	61	0.84
B00 B05 B06 B07	EYE AND EAR Coloboma of Iris Absence of Iris Other Anomalies of Iris	9 2 4	0.12 0.02 0.05
D00 D05 D06 D07 D11 D12 D13 D18 D26 D27 D28 D29 D33	CARDIAC Ventricular Septal Defect Ostium Secundum Type Atrial Septal Defect Endocardial Cushion Defect All Atrial Septal Defect Anomalies of Pulmonary Valve Tricuspid Atresia & Stenosis Congenital Mitral Stenosis Coarctation of Aorta Other Anomalies of Aorta Anomalies of Great Veins Eisenmenger's Syndrome Pulmonary Artery Atresia with Septal Defect	141 84 33 3 69 17 10 40 51 29 2 1	1.93 1.15 0.46 0.04 0.95 0.23 0.14 0.55 0.70 0.40 0.03 0.01
G00 G02 G03	GENITAL ORGANS Hypospadias Epispadias	179 3	2.46 0.04
H00 H08	URINARY BLADDER Exstrophy of the Urinary Bladder	3	0.04
J00 J10	TOTAL MUSCULOSKELETAL DEFECTS Deformities of the Feet	1	0.01
K00 K01 K02	ALL LIMB REDUCTIONS Absence/deformity of Upper Limb Absence/deformity of Lower Limb	41 15	0.56 0.25
L00 L03	Anomalies of Spine	62	0.85
X00	MISCELLANEOUS DEFECTS	76	1.04

The data show that among the other defects collected by the ABDMP, the most frequent defect are hypospadias and ventricular septal defect.